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U.S. DEPARTMENT OF THE INTERIOR

PROTOTYPE OIL SHALE LEASING PROGRAM

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TRACT C-b

QUARTERLY REPORT #1

(Through November 30, 1974)

Submitted to:

Mr. Peter A. Rutledge
Area Oil Shale Supervisor
Conservation District
U. S. Geological Survey
Grand Junction, Colorado

By:

Ashland Oil, Inc.
Atlantic Richfield Company, Operator
Shell Oil Company
The Oil Shale Corporation

JANUARY 14, 1975

SHOUT
SHARE
IT

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SECTION II C

AIR QUALITY

The air quality program is concerned with both measurements of atmospheric gaseous constituents and meteorological processes which affect their transport and diffusion.

Table/Fig. No.	Description	Page
Table II C-1	Air Quality and Meteorology Data Description This table summarizes data experimental programs in all areas: air quality and surface meteorology, low altitude meteorology, upper air studies, and visibility.	II C-2
Table II C-2	Air Quality and Meteorology Sampling Frequency, Minimum Averaging Times and Status This companion table to II C-1 gives sampling and reporting information and program status.	II C-3
Table II C-3	References for the Basic Data These references are contained at the end of this section. See also Table II C-4.	II C-4
Table II C-4	Air Quality and Meteorology Basic Data Presentation Guide This table summarizes the types of data presented in all the basic references at the end of this section.	II C-5

AIR QUALITY & METE[illegible]OLOGY DATA DESCRIPTION

Symbols represent sa[illegible]ng frequency on next table

Category & Location \ Measurement	SO_2	H_2S	Particulates	Total Hydrocarbons	Methane (CH_4)	Non-CH_4 H.C.	Ozone	NO_x	NO	NO_2	CO	Wind Speed	Wind Direction	Relative Humidity	Air Temperature	Precipitation	Barometric Pressure	Solar Radiation	Temperature Difference	Acoustic Echo	Visibility
Air Quality & Surface Meteorology																					
Trailer 020	X	X	O	Y	Y	Y	X	X	X	X	Y	X	X	X	X	X					
021	X	X	O									X	X	X	X	X					
022	X	X	O									X	X	X	X	X					
023	X	X	O	Y	Y	Y	X	X	X	X	Y	X	X	X	X	X					
024	X	X	O									X	X	X	X	X					
Low Altitude Meteorology																					
@ Met. Tower																					
Ground Level																	+	X			
8 - Ft.												X	X	X	X						
30 - Ft.												X	X	X	X				1,2		
100 - Ft.												X	X	X	X				1		
200 - Ft.												X	X	X	X				2		
Upper Air Studies																					
@ Met. Tower 200 - 6000 Ft.												*	*		*						
Temperature Inversions																					
@ Met. Tower																				&	
Visibility																					
@ Hunter Creek																					#

TABLE II C- 2

AIR QUALITY & METEOROLOGY SAMPLING FREQUENCY MIN. AVERAGING TIMES & STATUS

Symbols appear on previous table

Symbol	Sampling Frequency	Min. Average Time or Report Frequency	Description	Status
X	1/sec	5 min. average	AQ & Low Alt. Met.	Operational in Sept. except for Trailer 024
Y	5 min. avg.	5 min. average	↓	
O	1/24 hr. span	Daily	Particulates	Operational as of October
		Weekly	Trace Elem. Composites	
		Quarterly	Part. size distribution	↓
		Quarterly	Gross radioactivity	
		Quarterly	Volatile metals	Operational
1	1/sec	5 min. average	Temp. difference between 30'and 100' height on met. tower	Operational
2	1/sec	5 min. average	Temp. difference between 30'and 200' height on met. tower	Operational
+	1/sec	Daily max. and min. and times	Barometric Pressure	Operational
*	at least 2/day for 15 day/ quarter	same	High Alt. Meteorology Temp. & Wind Profiles to 6000 Ft.	Operational
&	1/(14-sec)	Onset & Extent of Inversions	Acoustic Echo (for Temp. Inversions)	Operational as of 2 January
#	open	open	Visibility	Not Contracted

TABLE II C-3

References for the Basic Data (Contained at the end of this section)

1. Air Monitoring Report for Atlantic Richfield Company. September 1974. Report No. 1 dated 20 November 1974. Radian Corporation, Austin, Texas (RC#100-056) 169 p.

2. Upper Air Studies Over Federal Oil Shale Tract C-b During October 1974. Prepared for Atlantic Richfield Co. under Contract No. 66123. E G & G Environmental Consultants, Albuquerque, N.M. E G & G Report No. AL-ECP-74-107 dated 6 December 1974. 90 p.

3. Upper Air Correlation Studies for October 1974 between Federal Oil Shale Tracts C-a, C-b and Grand Junction, Colorado. Prepared for the Atlantic Richfield Co. and the Rio Blanco Oil Shale Project. E G & G Environmental Consultants, Albuquerque, N.M. E G & G Report No. AL-ECP-74-109 dated 6 December 1974. 134 p.

4. Air Monitoring and Analytical Determinations of Volatile Trace Metals at the C-b Tract. Project No. 197. The Oil Shale Corporation, Golden, Colorado. Laboratory Data Letter 74-134 dated 4 December, 1974 to Dr. Max W. Legatski, Atlantic Richfield Co. 2p, encl· 2 p.

TABLE II C-4
AIR QUALITY & METEOROLOGY BASIC DATA PRESENTATION GUIDE

Ref. No.	Data Type	Presentation
1	1) All trailer data for air quality and meteorology (see 3) below)	Monthly average values
	2) Meteorological Tower (see 3c) below)	Monthly average values
	3) Air quality and meteorology	
	a) NO_x, NO, NO_2, THC, CH_4, Non-Methane HC, CO, O_3, Precipitation	Daily averages for trailer locations 020, 023
	b) SO_2, Particulates, H_2S, Temperature, Wind Speed, Wind Direction, Relative Humidity	Daily averages for trailers 020,021 022, 023, 024
	c) Meteorological Tower @ 4 heights Wind Speed, Wind Direction, Relative Humidity, Temperature	Daily Averages
	4) All trailer data for air quality and meteorology	Maximum 5-minute averages and time of occurrence
	5) Air Quality	5 Maximum Independent Sliding Averages:
	a) NO_x, NO, NO_2	1-hour durations
	b) SO_2	30-min. durations, 3-hour durations, 24-hour durations
	c) THC, CH_4, Non-Methane THC	3-hour durations
	d) O_3	1-hour durations
	e) CO	1-hour durations, 8-hour durations @ 6 a.m.
	6) Air Quality & Meteorology: Wind Speed, NO_x, NO, SO_2, H_2S, THC, CH_4, O_3, CO	Monthly Frequency Analysis - Bi-variate distributions of concentration with Wind Direction for 5-minute samples
	7) Air Quality & Meteorology: Wind Speed, Temperature, Relative Humidity, NO_x, SO_2, H_2S, THC, CH_4, O_3, CO	a) Hourly Diurnal Variations for each day of the month b) Histograms for the monthly average value at each hour of the day

AIR QUALITY & METEOROLOGY BASIC DATA PRESENTATION GUIDE

Ref. No.	Data Type	Presentation
2	Upper Air Studies (~200' to 6000') a) Winds Aloft	Daily Pibal releases over 15-day period - (4 per day maximum) 1) Tab data - Time, azimuth, elevation, height, x-y coordinates, velocity 2) Polar trajectories
	b) Temperature profiles	Temperature vs. altitude plots over 15 day-period (4 per day maximum)
3	Upper Air Studies (~200' to 6000') a) Winds Aloft b) Temperature profiles c) Atmospheric Stability	Correlations of ref. 2 data with C-a tract and with Grand Junction plus atmospheric stability correlations as obtained from slope of temperature-altitude curve @ 1000' and using Pasquill-Gifford stability classification scheme
4	Analytical determination of volatile trace metals: arsine, selenium, mercury	Table showing concentrations Table II C-9 of this document

Air Quality and Surface Meteorology

Subsection II C-1

AIR QUALITY AND SURFACE METEOROLOGY

Under the lease stipulations, air quality data are required over at least 90% of the lease year at four stations, one of which is at (or as near as practicable) the expected point of maximum concentrations. Sulfur dioxide, hydrogen sulfide, and suspended particulates are required to be monitored at all stations. Hydrocarbons, oxides of nitrogen "and other pollutants" are also required to be monitored as directed by the Mining Supervisor. Table II C-1 summarizes the types of data to be obtained at the 5 air quality trailer locations. Trailers 020 through 023 became operational in September 1974; trailer 024 became operational in October 1974. Thus, the required air quality monitoring system was completely operational as of 1 November 1974. Subcontractor (Radian Corp.) data reports for air quality and low altitude meteorology have been furnished through September 1974 as of the cutoff date of 30 November 1974 for this quarterly progress report; subsequent data will be presented in later progress reports.

Table/Fig. No.	Description	Page
Figure II C-1	Air Quality and Meteorological Stations This map shows the locations of the 5 air quality trailers and the meteorological tower. Trailers 020, 021, and 022 are located in the Piceance Creek basin at Redd Ranch, Rock School and the Gerald Oldland Ranch respectively; trailers 023 and 024 are on the tract at the meteorological tower and on the ridge between Cottonwood and Sorghum Gulches respectively.	II C-9
Table II C-5	Air Quality Summary, Trailer 020 This table summarizes air quality data maxima for the month of September, 1974. Data for trailers 021, 022, 023 follow.	II C-10
Table II C-6	Trailer 021	II C-11
Table II C-7	Trailer 022	II C-12
Table II C-8	Trailer 023	II C-13

Table/Fig. No.	Description	Page
Table II C-9	Analytical Determination of Volatile Trace Metals This table summarizes the data of reference 4.	II C-14

Basic air quality data are presented in references 1 and 4 at the end of this section for September 1974.

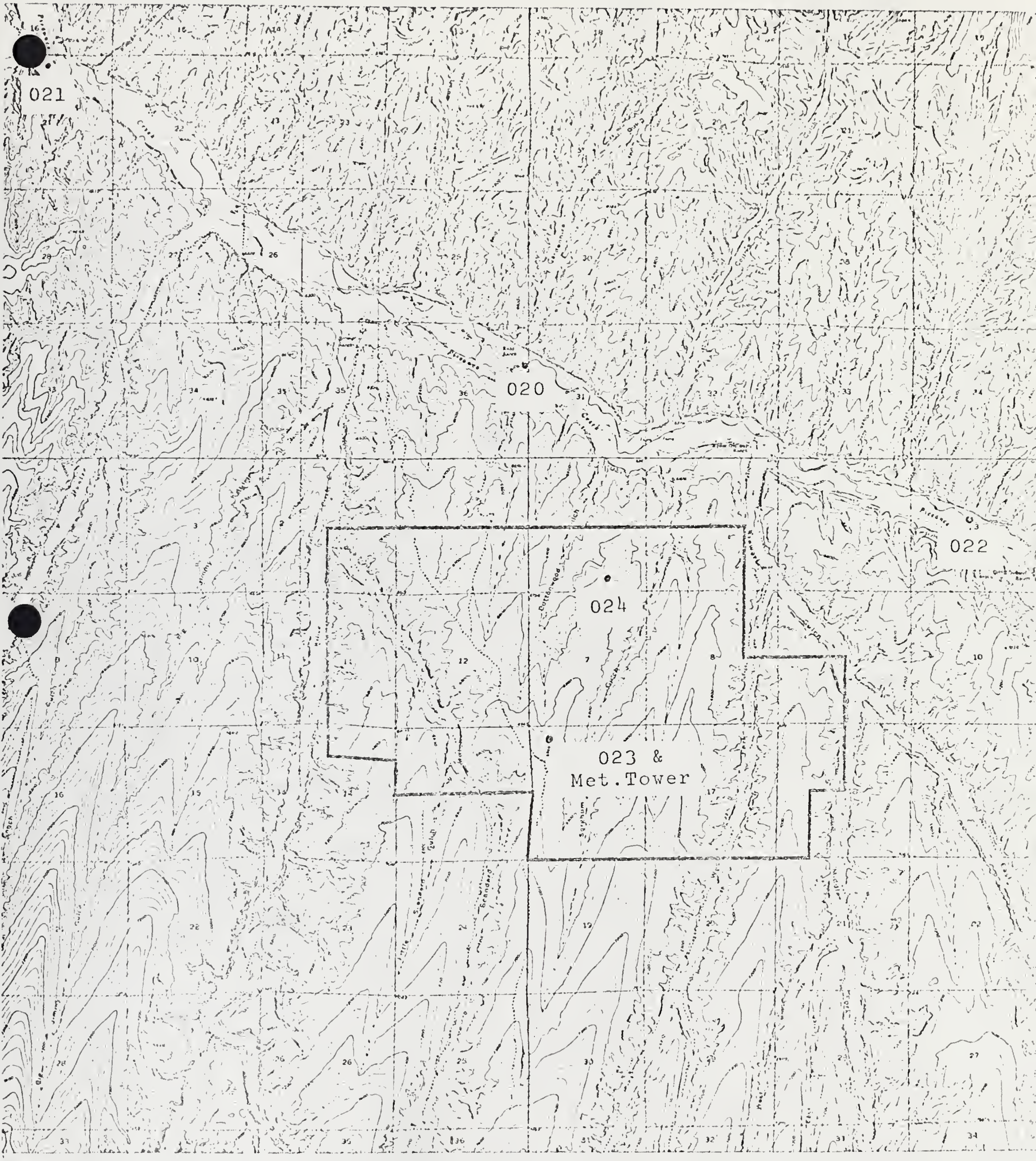
021
020
022
024
023 &
Met.Tower

FIGURE II C-1 AIR QUALITY & METEOROLOGICAL STATION LOCATIONS

TABLE II C-5

AIR QUAL[illegible] SUMMARY

(Concentrations in m[illegible]grams per cubic meter)

Trailer No. 020 Trailer Location Redd Ranch Period Sept. 1974

Contaminant	Monthly Average	Maximum 24 hr. Concentration		Maximum 8 hr. Concentration		Maximum 3 hr. Concentration		Maximum 1 hr. Concentration		Maximum 5 min. Concentration	
		Value	Time	Value	Time*	Value	Time*	Value	Time*	Value	Time*
SO_2 (max 24 hr.)	9.1	90.3 103.6	9/15 9/14(16:00)	-	-	146.0	9/14(16:05)	(1) 226.3	9/18(4:35)	264.4	9/14(17:00)
H_2S	1.5	15.7	9/15	-	-	-	-	-	-	47.1	9/13(15:30)
Particulates										-	-
Tot. Hydrocarbons		644.0	9/13			629.7	9/13(6:00)			2515.9	9/13(14:25)
Methane		1569.1	9/7			1712.5	9/7(6:00)			2804.2	9/7(7:05)
Non-CH_4 HC											
Ozone	41.6	74.8	9/10	-	-	-	-	139.4	9/30(5:25)	574.6	9/30(6:05)
NO_x	7.0	12.3	9/26	-	-	-	-	103.3	9/30(15:55)	672.7	9/30(16:05)
NO	1.0	4.1	9/13	-	-	-	-	42.2	9/18(3:30)	64.8	9/18(3:50)
NO_2	5.9	11.1	9/26	-	-	-	-	102.2	9/30(15:55)	672.7	9/30(16:05)
CO	1113.9	1578.4	9/13	1632.0	9/13(6:55)	-	-	2295.5	9/13(14:05)	4901.4	9/17(3:40)

(1) 30 min. instead of 1-hr.

* Start of time interval of occurrence

AIR QUAL SUMMARY

(Concentrations in micrograms per cubic meter)

Trailer No. 021 Trailer Location Rock School Period Sept. 1974

Contaminant	Monthly Average	Maximum 24 hr. Concentration		Maximum 8 hr. Concentration		Maximum 3 hr. Concentration		Maximum 1 hr. Concentration		Maximum 5 min. Concentration	
		Value	Time	Value	Time*	Value	Time*	Value	Time*	Value	Time*
SO_2 (max 24 hr.)	5.6	142.5 136.0	9/11 9/10(22:00)	-	-	233.1	9/11(12:30)	271.0(1)	9/11(14:40)	742.1	9/11(4:25)
H_2S	-	93.3	9/11	-	-	-	-	-	-	317.1	9/30(17:30)
Particulates											
Tot.Hydrocarbons		Not Sampled									
Methane		Not Sampled									
Non-CH_4 HC		Not Sampled									
Ozone		Not Sampled									
NO_x		Not Sampled									
NO		Not Sampled									
NO_2		Not Sampled									
CO		Not Sampled									

(1) 30 min. instead of 1-hr.

* Start of time interval of occurrence

TABLE II C-7

AIR QUA SUMMARY

(Concentrations in ograms per cubic meter)

Trailer No. 022 Trailer Location Gerald Oldland Ranch Period Sept. 1974

Contaminant	Monthly Average	Maximum 24 hr. Concentration		Maximum 8 hr. Concentration		Maximum 3 hr. Concentration		Maximum 1 hr. Concentration		Maximum 5 min. Concentration	
		Value	Time	Value	Time*	Value	Time*	Value	Time*	Value	Time*
SO_2 (max 24 hr.)	9.4	110.1 113.5	9/30 9/29(20:00)	-	-	254.6	9/30(2:55)	707.9[(1)]	9/15(0:10)	1726.4	9/15(0:35)
H_2S	1.1	4.9	9/25	-	-	-	-	-	-	1125.4	9/25(17:30)
Particulates											
Tot. Hydrocarbons		Not Sampled									
Methane		Not Sampled									
Non-CH_4 HC		Not Sampled									
Ozone		Not Sampled									
NO_x		Not Sampled									
NO		Not Sampled									
NO_2		Not Sampled									
CO		Not Sampled									

(1) 30 min. instead of 1-hr.

* Start of time interval of occurrence

AIR QUAL SUMMARY

(Concentrations in m[illegible]grams per cubic meter)

Trailer No. 023 Trailer Location Meteorological Tower Period Sept. 1974

Contaminant	Monthly Average	Maximum 24 hr. Concentration		Maximum 8 hr. Concentration		Maximum 3 hr. Concentration		Maximum 1 hr. Concentration		Maximum 5 min. Concentration	
		Value	Time	Value	Time*	Value	Time*	Value	Time*	Value	Time*
SO_2 (max. 24 hr.)	-	11.6 15.3	9/26 9/25(3:00)	-	-	16.2	9/25(20:40)	26.1(1)	9/28(21:10)	91.4	9/28(21:40)
H_2S	-	0.5	9/28	-	-	-	-	-	-	41.1	9/29(2:15)
Particulates											
Tot.Hydrocarbons	-	2331.2	9/30			2405.1	9/29(6:00)			2935.7	9/30(2:35)
Methane	-	1842.3	9/30			1943.0	9/30(6:00)			2621.3	9/29(2:55)
Non-CH_4 HC	-	489.0	9/30			498.9	9/29(6:00)			1658.5	9/29(2:25)
Ozone	-	71.0	9/29	-	-	-	-	97.9	9/29(1:40)	132.4	9/29(2:20)
NO_x	-	104.1	9/29	-	-	-	-	181.2	9/29(8:50)	270.5	9/29(9:20)
NO	-	71.2	9/30	-	-	-	-	96.1	9/30(21:40)	432.4	9/28(14:40)
NO_2	-	87.0	9/29	-	-	-	-	178.2	9/29(8:50)	234.7	9/29(9:20)
CO	-	1713.4	9/28	1893.0	9/28(0:55)	-	-	2357.7	9/25(20:45)	4161.6	9/29(15:25)

(1) 30 min. instead of 1-hr.

* Start of time interval of occurrence

TABLE II C-9

ANALYTICAL DETERMINATION OF VOLATILE TRACE METALS SAMPLED AT THE [illegible]-b TRACT

Metal	Analytical Basis	Total Volume of Air Sample (liters)*	Concentration PPB (v/v)
Arsine	Arsine was trapped into silver diethyldithiocarbamate solution. The color intensity was measured using Spectronic 20. Concentration of arsine in the sample was obtained by using a calibration curve.	112.96	3.10
Selenium**	Doubly distilled water was used to collect selenium oxides. Selenium concentration was determined using the catalytic method. The method is based on the catalytic effect of selenium in the reduction of methylene blue by sodium sulfide.	225.90	0.10
Mercury	Airborne mercury was allowed to amalgamate with silver which was then heated to 350° C to vaporize mercury. Mercury vapors were fed into a silica tube and its concentration was determined using the flameless atomic absorbtion method.	149,648.00	0.012

* Measured volumes were corrected at B.P. 593.30 and 10° C.
** Concentration expressed as selenium oxide.

Sampling Date: November 22, 1974
Sampling Point: Meteorological Tower

Low Altitude Meteorology

LOW ALTITUDE METEOROLOGY

The lease stipulations require a meteorological tower to be established in reasonable proximity to the plant site to monitor, at least 95% of the time, wind direction and wind speed at three levels, one at least 100 feet above the surface, one at approximately 30 feet and one at an intermediate level. Temperature is required at two levels, one at least 100 feet above the surface and one at approximately 30 feet. Humidity is required at one level.

As indicated on Table II C-1 low altitude meteorological tower data are obtained at 8', 30', 100' and 200' for wind direction and speed relative humidity, and temperature. Barometric pressure and daytime solar radiation are obtained at ground level. Temperature differences are obtained between the 30 feet and 100 feet levels and between the 30 feet and 200 feet levels.

Basic low altitude meteorological data are contained in ref. 1 through September 1974 (as for air quality).

Upper Air Studies

Subsection II C-3

UPPER AIR STUDIES

There are no requirements in the lease stipulations for upper air studies. They are required in conditions of approval from the Mining Supervisor. Two winds-aloft and temperature profiles per day to altitudes of 6000 feet above the tract are required for a minimum of 15 days per quarter.

Data for this reporting period were obtained by E G & G consultants for the wind and temperature profiles during the 15 day period from October 1 - 15, 1974. Winds aloft were obtained from pibal releases at the meteorological tower; temperatures aloft were obtained via an instrumented aircraft.

Basic data of the types indicated in Table II C-4 are presented at the end of this section in references 2 and 3 by the E G & G Environmental Consultants.

In addition to the above instrumentation, an acoustic sounder was installed (but not required) at the meteorological tower location by Wm. Marlatt and Assoc. (consultants) on December 7, 1974 and became operational as of 2 January 1975. It will be used to assist in assessing atmospheric stability by determination of the height and time-extent of unstable layers and stable layers, including inversions.

Visibility

VISIBILITY

There are no visibility requirements in the lease stipulations; site visibility measurement are required in the conditions for approval by the Mining Supervisor.

A joint proposal request with the C-a tract is currently being prepared.

Atmospheric Diffusion Studies

ubsection II C-4

ATMOSPHERIC DIFFUSION STUDIES

There are no requirements in the lease stipulations for atmospheric diffusion studies. Conditions for approval from the Mining Supervisor require X/Q estimates for 24-hour and 3-hour averages.

These studies will be initiated at a future date when stack emission data become available.

Radian AQ Data (Ref 1)

RADIAN
CORPORATION

RC#100-056

AIR MONITORING REPORT
FOR
ATLANTIC RICHFIELD COMPANY
SEPTEMBER 1974

Report No. 1

20 November 1974

Presented to:

Atlantic Richfield Company
Suite 555, Two Park Central
1515 Arapahoe Street
Denver, Colorado 80202

Attn: Mr. Max Legatski

Prepared by:

Radian Staff

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I. GENERAL DESCRIPTION OF AIR MONITORING PROGRAM

Radian Corporation is under contract to Atlantic Richfield Company to provide ambient air quality monitoring. Each site measures and records the concentration of particulates, sulfur dioxide, and hydrogen sulfide. In addition, two of the sites record the amounts of nitrogen oxides, total hydrocarbon, methane, ozone, and carbon monoxide. Selected meteorological parameters such as wind speed, wind direction, temperature, and rainfall are monitored at each station. A 200-foot meteorological tower at one of the sites provides meteorological information as a function of height.

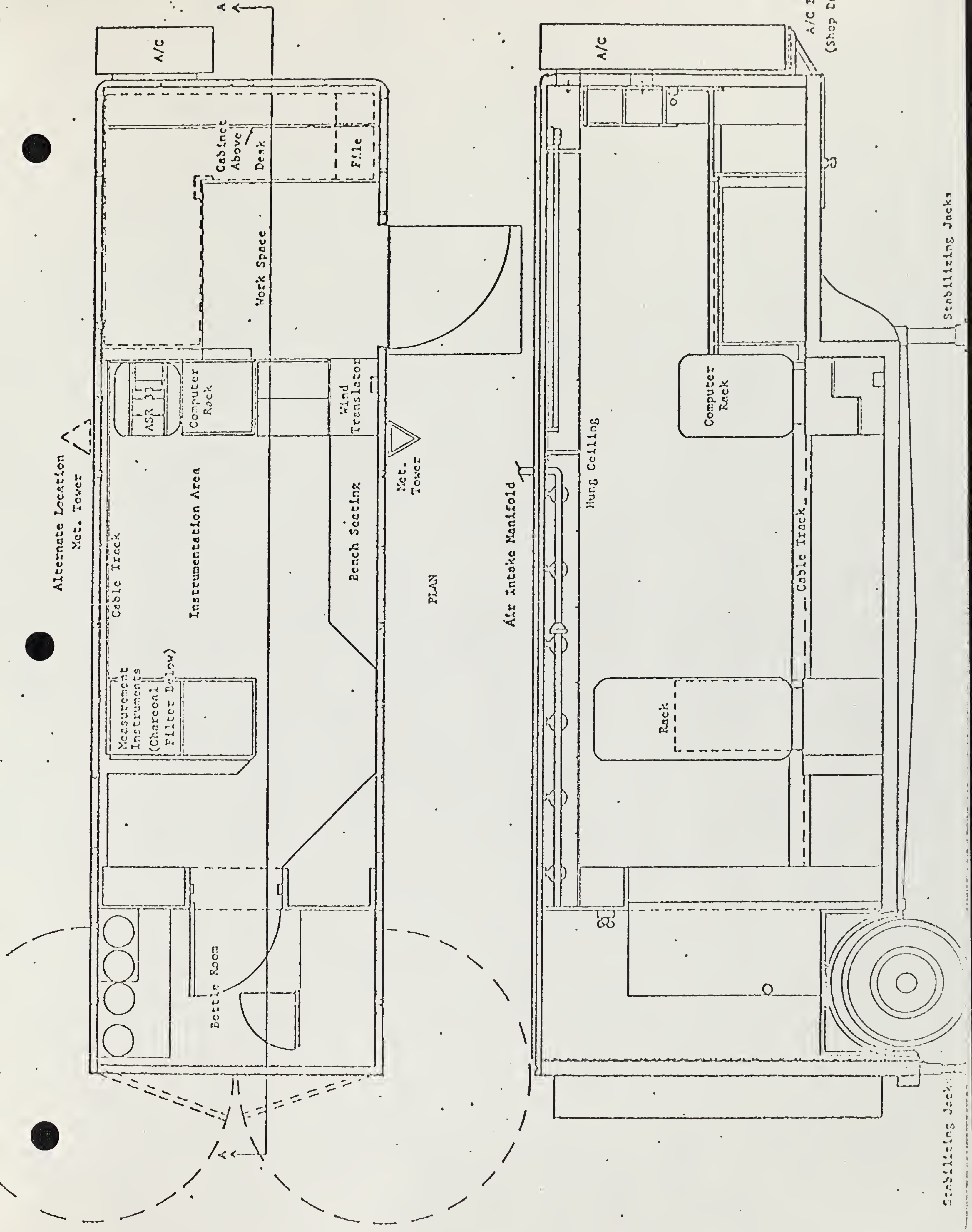
A/C
A
Alternate Location
Met. Tower
Cable Track
Instrumentation Area
Cabinet Above
Desk
File
Work Space
ASR 33
Computer Rack
Wind Translator
Met. Tower
Bench Seating
PLAN
Measurement Instruments
(Charcoal Filter Below)
Bottle Room
A
A/C
Air Intake Manifold
Hung Ceiling
Computer Rack
Cable Track
Rack
Stabilizing Jacks
Stabilizing Jacks

Figure 1

II. DESCRIPTION OF INSTRUMENT SYSTEMS

A. Air Quality Instrumentation

Nitrogen oxides are measured with a Meloy Model NA520 analyzer. This dual-channel analyzer is based on the chemiluminescent principle, and continuously monitors both NO_x and NO. A subtraction circuit in the instrument provides a continuous NO_2 output, but is not used in Radian's system. NO_2 is calculated once a second by the computer by subtracting the NO value from the NO_x value, thus avoiding any drift which might occur in the NO_2 output of the instrument. This instrument has a maximum detectable sensitivity of 5 ppb (parts per billion), and a linearity of 1%.

Both sulfur dioxide and hydrogen sulfide are measured with Meloy Model SA185 sulfur analyzers. The hydrogen sulfide analyzer uses a Meloy Model SO_x-1 sulfur dioxide scrubber and the sulfur dioxide analyzer uses a Meloy Model H_2S-1 hydrogen sulfide scrubber. The Model SA185 is a continuous analyzer, and utilizes the flame photometric principle of operation. The minimum detectable sensitivity is 5 ppb, and the linearity is ±1%.

Ozone is measured with a Meloy Model OA350 analyzer. This instrument provides continuous measurement of ozone, and is based on the chemiluminescent principle. The minimum detectable sensitivity is 0.5 ppb and the linearity is 1%.

Total hydrocarbons, methane, and carbon monoxide are monitored with a Bendix Model 8200 gas chromatograph analyzer. This instrument uses a ~~plume~~ flame ionization detector and has a minimum detectable sensitivity of 5 ppb for all three components. The Model 8200 works on a five-minute cycle, i.e., one air sample is analyzed every five minutes.

The air sample is drawn in through a glass cane and manifold supplied by the Ace Glass Company. The system has a 25mm diameter, and a constant air flow through the system is provided by an air pump rated at 60 cfm at 0" head pressure. The manifold has sampling ports to which ¼" teflon lines to the instruments are connected. All joints in the sampling system are secured by O-ring compression fittings. The manifold is contained in a heated (100°F) chamber to prevent condensation of moisture. The teflon lines from the manifold to the instruments are insulated with 1/8" wall thickness rubber tubing.

The trailer has four heavy duty high volume particulate samplers (Hi-Vols). Fiberglass filter paper is used for collection of particulate samples, and each filter is brought to a controlled humidity before weighing. Each Hi-Vol has a flow recorder to permit correction for changes in air flow as the filter becomes loaded with particulates. Each Hi-Vol runs for a 24-hour period (midnight to midnight), and is turned on and off by the computer. The Hi-Vols were designed following guidelines recommended by the Environmental Protection Agency and were manufactured by Radian.

B. Calibration Procedures

Each trailer contains a Meloy Model RAD-1 calibration unit. This instrument provides a zero air supply, SO_2 span gas from an SO_2 permeation tube, and NO span gas obtained by precisely diluting bottled NO span gas. The calibration of all instruments is automatically performed once a day, and is controlled by the computer. Each instrument is first switched to zero, and the computer monitors the output of each channel and takes a new zero reading after a stable zero signal has been reached. This zero reading is compared by the computer to the zero reading obtained 24 hours before, and if a drift in excess of 10ppb has occurred, an excess zero drift light for the channel in question is turned on on the System Status Panel. Next, span gas is supplied to each channel and the computer decides when a stable span value has been reached. This value is recorded and compared to the previous day's value. An excess span drift light on the System Status Panel is turned on if a drift exceeding 10ppb occurs. The instruments are then returned to the monitor mode, and after two minutes the computer resumes data taking.

The bottled NO gas used at each site was obtained from Precision Gas Products. Pre-purified grade hydrogen is used in the SO_2 analyzers.

The SO_2 permeation tubes were manufactured by Metronics Association, Inc. Their output has been verified by comparison to the output of National Bureau of Standards tube 10-42. Both SA185 analyzers in each trailer are calibrated with SO_2 from the permeation tube. This instrument responds to the number of sulfur atoms per molecule, thus SO_2 can be used to calibrate both the H_2S and SO_2 monitors

The Model OA350 ozone analyzer has its own calibration system which provides a zero check and a span check. The ozone calibration system is verified by comparison to a calibrated ozone generator maintained in Radian's laboratory in Rifle.

The Model 8200 total hydrocarbon, methane, and carbon monoxide analyzer is calibrated with undiluted span gas obtained from Airco's Rare and Specialty Gas Division. This span gas contains methane and carbon monoxide in air, the methane being used to calibrate both the total hydrocarbon channel and the methane channel. The Model 8200 is zeroed with air from a

Bendix Model 8834 zero air unit. In addition the instrument is electronically re-zeroed at the start of every five-minute cycle.

The Hi-Vol particulate samplers were calibrated using a Calibration Kit from General Metal Works.

C. Data Acquisition System

The basis of the data acquisition system is a Data General NOVA 1200 minicomputer. The NOVA which has a basic cycle time of 1.2 μsec is equipped with automatic program load and power fail/automatic restart features. The computer utilizes 16K 16-bit words of core memory. Analog-to-digital conversion is accomplished via an ADC built by Radian Corporation. The input/output unit for the system is Texas Instrument's KSR 733 keyboard/printer. This model teletype provides keyboard entry and hard copy printed output. The data are also recorded on a cassette magnetic tape unit with three drives. The cassette unit is utilized for program storage and loading as well as recording. The power to the teletype and cassette units is turned on only when the unit(s) is to be used to reduce wear on mechanical parts. Several important functions in the instruments as well as in the computer and the trailer are monitored by means of lights on a System Status Panel. These data lights are written onto cassette tape to monitor the complete status of the system every five minutes. The Data Acquisition System also monitors the presence of 110V power from the power lines. In its absence, the computer, which is powered by batteries, switches all trailer systems to battery-provided power. If the line voltage is restored before the batteries are discharged to a specified level, the trailer system is switched back to line power.

D. Meteorological Instrumentation

1. Ambient Air Monitoring Trailers

Four of the ambient air monitoring trailers are equipped with the following meteorological instrumentation: (1) dry bulb temperature (outside), (2) relative humidity, (3) wind direction, (4) wind speed, and (5) a tipping bucket, heated rain/snow gage. The temperature probe and relative humidity sensor are mounted inside a motor aspirated radiation shield, the Model 1S6 Aspirated Radiation Shield by Weather Measure, which gives an aspiration of approximately 100 cfm. The wind instrumentation and temperature and relative humidity apparatus (in the aspirated radiation shield) are all mounted atop a 33-foot crank-up meteorological tower (the WM-33, by Weather Measure) at each of the four trailer sites.

The wind instrumentation at the monitoring trailers consists of the Model W103/3L Lightweight Cup Anemometer by Weather Measure and the Model W104-2 Lightweight Vane by Weather Measure. The anemometer is a high response, low threshold wind system which offers the optimum in versatility and economy. For low threshold applications, a unique frictionless tachometer employing a high frequency oscillator and receiver is used to measure precisely wind speed. The oscillator, transmitter, and receiver are encapsulated in a small cube of epoxy for total protection against the environment. The high frequency tachometer embodies several distinct advantages over the commonly used light chopper systems. There are no light bulbs or photocells to burn out; power consumption is low; and the system is insensitive to moisture condensation or dust deposition. The solid state tachometer is essentially free from maintenance with a life of well over five years when operated continuously. The specifications of the W103 Cup Anemometer are as follows:

- Accuracy: ± 1% or .15 mph, whichever is greater.
- Bearings: Sealed and shielded precision stainless steel.
- Threshold: 0.6 miles per hour
- Distance Constant: 5 feet

The wind vane, the W104-2, is equipped with a 1000 ohm low torque potentiometer and two wipers for 0° to 540° operations. The response characteristics of this vane are:

- Dead Bank: 0 degrees
- Damping Ratio: 0.4
- Distance Constant: 3.5 feet
- Threshold: 0.75 miles per hour
- Potentiometer Linearity: 0.5%

The thermistor probe used in the motor aspirated radiation shields is the Model T621-TP18X Air Temperature Premium Thermistor Probe by Weather Measure. This probe has a range of -50°C to +50°C and an interchangeability of ± 0.055°C. The output signal accuracy is ± 0.3°F.

The relative humidity sensor is the Model 2013 Remote Reading Relative Humidity System by Texas Electronics. The sensor assembly contains a newly-developed hygroscopic inorganic sensing element. Its expansion and contraction positions the suspended core of a linear variable differential transformer (LVDT). The absence of friction inducing linkages and wiping contacts minimizes hysteresis and improves accuracy. The LVDT output signal, when processed, is directly proportional to relative humidity. The specifications of this instrument are as follows:

- Range of Indication: 0% to 100% RH
- Response: The sensor response time to a step change of 10% in relative humidity is less than 2 minutes with the sensor exposed to moving air.
- Accuracy: 5% - 15% RH; ± 5% RH
  15% - 95% RH; ± 2% RH
  95% -100% RH; ± 3% RH
- Signal Output: Analog signal of -150 mv. to +150 mv. with electrical zero at 50% RH is standard.

Each of the four monitoring trailers is equipped with a Model P511-E Remote Recording Heated Snow Gage by Weather Measure. In the case of this gage, the durability and reliability of a tipping bucket gage are combined with heavy-duty electric heaters to make this an all-purpose precipitation sensor. This gage may be used to measure snowfall and rainfall. An insulating cover of poly-vinyl chloride and a thermostatic control insure the proper gage temperature. The thermostatic control is adjustable from 0 to 35^{o}C. Snow falling into the inlet funnel is melted. The resulting water (from rain or snow) drains into a precision tipping bucket mechanism which activates a mercury switch each time the bucket fills and tips. The gage is constructed of durable corrosion-resistant materials to provide many years of service. The specifications of this gage are as follows:

- Orifice: 8 inches
- Calibration: 0.01 inch
- Accuracy: 0.5% (Calibrated at 0.5 in/hr)
- Sensor: Chrome plated tipping buckets
- Switch: Mercury, 0.1 second closure
- Heat Control: Thermostat adjustment, 0 to 35°C.

2. 200-Foot Meteorological Tower

The tower has instrumentation at four levels: 8 feet, 35 feet, 100 feet, and 200 feet. At all four levels, there are: wind speed, wind direction, and temperature and relative humidity sensors in a power aspirated radiation shield. Temperature difference thermistors (also in power aspirated radiation shields) and their associated circuitry take lapse rate measurements for the 35-foot to 100-foot layer and the 35-foot to 200-foot layer. In addition, this site has a Precision Spectral Pyranometer, a barometer, and a tipping bucket rain/snow gage.

The wind direction and speed apparatus used at each measurement level of the tower is the Model 1074-2 wind sensor by Meteorological Research, Inc. (MRI). This sensor has a 540° potentiometer for wind direction and a light chopper for wind speed. This sensor is rugged, with an all-weather coaxial cup and damped vane assembly. The prototype model has been in operation for years under the most demanding weather conditions, performing continuously with the utmost reliability. All of the wind sensors on the tower have been specially treated with a black paint which will promote warming of the exposed surfaces of the sensor and thereby reduce ice and snow accumulations on the moving parts of the apparatus. The specifications on the Model 1074-2 are as follows:

Wind Speed

- Starting Threshold: 0.75 mph
- Response Distance: 18 feet (63% recovery)
- Flow Coefficient: 7.9 feet/Revolution
- Accuracy: ± 0.4 mph or 1% (whichever is greater)
- Range: 0-100 mph

Wind Direction

- Starting Threshold: 0.75 mph
- Delay Distance: 4 feet (50% recovery)
- Damping Ratio: 0.5 to 0.6
- Accuracy (540° system): ± 1%
- Range: 0° to 540°

The relative humidity and temperature sensors are mounted within a power aspirated radiation shield at each tower level. All aspirators and sensors are of the Model 840 Series by MRI. The aspirated shielded housing is designed to provide maximum radiation protection to the sensor. Ambient air is drawn into the shield and across the sensors at approximately 15 feet per second. This intake air is essentially sampled from a hemispherical space which is approximately 3-inch radius from the tube opening. Speed of the incoming air at the periphery of this hemisphere is approximately 1 mph.

The temperature sensor is comprised of a dual thermistor and resistor network. This circuit provides a linear resistance change with an air temperature change. The relative humidity sensor is placed alongside the temperature elements inside the shield where it is exposed to a constant flow of air. Circulation to both sides of the sensing element produces accurate monitoring with a good response time. The specifications on the sensing elements are as follows:

Temperature

- Accuracy: ± 0.25°C
- Range: -50°C to +50°C

Humidity

- Accuracy: ± 3.0% RH
- Range: 0% to 100% Relative Humidity

Measurements of temperature difference are taken for two layers, the 35-foot to 100-foot layer and the 35-foot to 200-foot layer. The thermistors and circuitry used for these measurements are separate from the thermistors measuring air temperature. The use of separate thermistors and circuitry to measure ΔT allows for much greater accuracy and resolution in the measurements, which is necessary for stability assessments. Two ΔT thermistors are at the 35-foot level, one is at the 100-foot level, and one is at the 200-foot level. All of these ΔT thermistors are mounted within power aspirated radiation shields. The specifications on the ΔT instrumentation are as follows:

- Accuracy: ± 0.1°C
- Range of ΔT Circuit
  (Lower Level-Upper Level): +4°F to -8°F

All instrumentation, except at the ground level, is mounted at the end of 12-foot retractable booms. These booms are 3-inch box beams which are on rollers and can be retracted to the instrument platforms for instrument maintenance.

The meteorological tower itself is a 200-foot Rohn Model 80 Guyed Tower, designed for 40 pounds per square foot wind load with ½" of radial ice per EIA Standard RS-222-B, to support four levels of meteorological equipment. The material consists of tower sections with a tapered base, three retractable booms 12-feet long, three outside work platforms, an inside ladder for climbing, two base ground kits and one anchor ground kit. The cable-type Safety Climbing Device consists of a cable and attachment mechanisms with a locking sleeve and safety belt. The tower is lighted and painted according to FAA specifications.

The signals from the tower instrumentation are fed from multiple signal cables into transmitters mounted at the base of the tower. After signals have been converted to analog signals, they are fed into a junction box, also at the tower base, where they are assimilated into one coaxial cable. The signals are then run underground within 3" PVC conduit to the A-to-D assembly, where they are processed. The transmitters are shielded and insulated from the elements. The signal cable is run underground in PVC conduit in order to minimize damage from the weather or various rodents in the region.

The auxiliary equipment at the tower site consists of a heated tipping bucket rain/snow gage, an analog barometer, and a Precision Spectral Pyranometer. The rain/snow gage is the Model P511-E unit by Weather Measure, with characteristics and specifications as described in Section 1. The barometer is the B242 Analog Output Barometer by Weather Measure. This barometer provides an output voltage that is linearly proportional to pressure. The specifications on this instrument, which is mounted inside the monitoring trailer at the site, are as follows:

- Range: Specially designed for the 100 millibar interval from 725 millibars to 825 millibars.
- Resolution: Infinite
- Linearity: ± 0.5 millibar, over the 100 millibar interval

The pyranometer at the site is the Eppley Precision Spectral Pyranometer. This instrument is used for the measurement of sun and sky radiation totally or in defined wavelength bands. The pyranometer is levelled and mounted atop a wooden stand 4½ feet from the ground surface. Care has been taken to eliminate the effects from all outside influences, such as reflection or shadows, on the pyranometer. The instrument characteristics are as follows:

- Sensitivity: 5 mv. per cal/cm²/min
- Independence: 300 ohms
- Temperature dependence: Sensitivity constant to within ± 1 percent over the ambient temperature range from -20 to +40°C
- Linearity: Response linear up to intensities of 4 cal/cm²/min
- Response Time: 1 second (i/e signal)

All instrumentation is factory calibrated and is field-calibrated at various intervals. Sling psychrometers are used to calibrate the humidity sensors, known temperatures and/or resistances are used to calibrate the thermistors, and an rpm calibrating unit is used to calibrate the anemometers. The wind direction instrumentation is aligned to true north (reference direction) by means of a surveyor's transit.

IV. OPERATING TIME ANALYSIS FOR EACH SITE

This section presents operating statistics for each of the major subsystems contained in each of the monitoring stations. Table II shows the specific number of hours that each of these subsystems was inoperative for the month. The column labeled "COMPUTER" indicates the entire data acquisition system, and therefore means total loss of data. These instances include, in addition to computer downtime, power failures, no power available, and self-automated shutdown periods such as during air conditioner malfunctions. The amount of time used in calibrating the instruments is listed separately and is not included in the downtime hours. The times shown in the table are approximate and require a judgment of the station operators as to the exact time of system malfunction in most instances.

TABLE II.
DOWNTIME HOURS FOR ATLANTIC RICHFIELD MONITORING PROJECT

TRAILER 020 TOTAL CALIBRATION TIME= 0.0 HOURS

DATE	COMPUTER	NOX	NO	SO2	THC	CH4	CO	O3	H2S	WS	WD	RH	TEMP
9/ 1	0.	24.	24.	0.	24.	7.	13.	0.	0.	0.	0.	0.	0.
9/ 2	0.	24.	24.	0.	23.	7.	16.	0.	0.	0.	0.	0.	0.
9/ 3	0.	24.	24.	0.	24.	7.	19.	0.	0.	0.	0.	0.	1.
9/ 4	0.	24.	24.	0.	24.	7.	17.	0.	0.	0.	0.	0.	0.
9/ 5	0.	24.	24.	1.	24.	8.	7.	0.	0.	0.	0.	0.	0.
9/ 6	0.	24.	24.	0.	24.	6.	9.	0.	0.	0.	0.	0.	0.
9/ 7	1.	23.	23.	0.	23.	3.	5.	0.	0.	0.	0.	0.	0.
9/ 8	0.	24.	6.	0.	24.	7.	1.	0.	0.	0.	0.	0.	0.
9/ 9	1.	14.	14.	0.	22.	13.	10.	0.	0.	0.	0.	0.	0.
9/10	0.	0.	0.	0.	24.	11.	24.	0.	0.	0.	0.	0.	0.
9/11	0.	0.	0.	0.	24.	24.	0.	0.	0.	0.	0.	0.	24.
9/12	5.	0.	0.	0.	18.	18.	0.	0.	0.	0.	0.	0.	13.
9/13	1.	0.	0.	0.	9.	23.	0.	0.	0.	0.	0.	0.	0.
9/14	0.	0.	0.	0.	24.	24.	0.	0.	0.	0.	0.	0.	0.
9/15	0.	0.	0.	0.	24.	24.	0.	0.	0.	0.	0.	0.	0.
9/16	0.	1.	1.	1.	24.	24.	1.	1.	1.	1.	1.	1.	1.
9/17	1.	0.	0.	0.	23.	23.	10.	0.	0.	0.	0.	0.	0.
9/18	0.	10.	10.	0.	12.	24.	8.	0.	0.	0.	0.	0.	0.
9/19	0.	0.	0.	0.	24.	24.	0.	0.	0.	0.	0.	0.	0.
9/20	0.	22.	22.	22.	24.	24.	22.	22.	22.	22.	22.	22.	22.
9/21	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.
9/22	13.	0.	0.	0.	0.	11.	0.	0.	0.	0.	0.	0.	0.
9/23	14.	0.	0.	0.	4.	10.	0.	0.	0.	0.	0.	0.	0.
9/24	0.	0.	0.	0.	6.	24.	0.	0.	0.	0.	0.	0.	0.
9/25	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.
9/26	0.	0.	0.	0.	10.	24.	9.	0.	0.	0.	0.	0.	0.
9/27	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.
9/28	0.	0.	0.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.
9/29	0.	0.	0.	0.	24.	24.	24.	0.	0.	0.	0.	0.	0.
9/30	0.	0.	0.	0.	24.	23.	23.	0.	0.	0.	0.	0.	0.

TABLE II.
DOWNTIME HOURS FOR ATLANTIC RICHFIELD MONITORING PROJECT

TRAILER 021

TOTAL CALIBRATION TIME= 0.0 HOURS

DATE	COMPUTER	SO2	H2S	WS	WD	RH	TEMP
9/ 1	0.	0.	24.	24.	0.	0.	0.
9/ 2	0.	0.	24.	24.	0.	0.	0.
9/ 3	0.	0.	24.	24.	0.	0.	0.
9/ 4	0.	0.	24.	24.	0.	0.	0.
9/ 5	0.	0.	24.	23.	0.	0.	0.
9/ 6	2.	0.	22.	12.	0.	0.	0.
9/ 7	1.	0.	23.	0.	0.	0.	0.
9/ 8	0.	0.	24.	0.	0.	0.	0.
9/ 9	0.	0.	24.	0.	0.	0.	0.
9/10	3.	0.	11.	0.	0.	0.	0.
9/11	4.	1.	1.	0.	0.	0.	0.
9/12	0.	0.	0.	0.	0.	0.	0.
9/13	2.	0.	0.	0.	0.	0.	0.
9/14	1.	0.	0.	0.	0.	0.	0.
9/15	1.	0.	0.	0.	0.	0.	0.
9/16	0.	0.	0.	0.	0.	0.	0.
9/17	0.	0.	0.	0.	0.	0.	0.
9/18	0.	0.	0.	0.	0.	1.	0.
9/19	0.	0.	0.	0.	0.	0.	0.
9/20	0.	0.	0.	0.	0.	0.	0.
9/21	0.	0.	0.	0.	0.	0.	0.
9/22	0.	0.	0.	0.	0.	0.	0.
9/23	0.	0.	0.	0.	0.	0.	0.
9/24	0.	0.	0.	0.	0.	0.	0.
9/25	0.	0.	0.	0.	0.	0.	0.
9/26	1.	0.	0.	0.	0.	0.	0.
9/27	24.	0.	0.	0.	0.	0.	0.
9/28	24.	0.	0.	0.	0.	0.	0.
9/29	16.	0.	0.	0.	0.	0.	0.
9/30	0.	0.	1.	0.	0.	0.	0.

TABLE II.
DOWNTIME HOURS FOR ATLANTIC RICHFIELD MONITORING PROJECT

TRAILER 022

TOTAL CALIBRATION TIME= 1.1 HOURS

DATE	COMPUTER	SO2	H2S	WS	WD	RH	TEMP
9/ 1	1.	0.	0.	0.	0.	0.	0.
9/ 2	0.	0.	0.	0.	0.	0.	0.
9/ 3	0.	0.	0.	0.	0.	0.	0.
9/ 4	0.	0.	0.	0.	0.	0.	0.
9/ 5	20.	0.	0.	0.	0.	0.	0.
9/ 6	24.	0.	0.	0.	0.	0.	0.
9/ 7	24.	0.	0.	0.	0.	0.	0.
9/ 8	24.	0.	0.	0.	0.	0.	0.
9/ 9	24.	0.	0.	0.	0.	0.	0.
9/10	24.	0.	0.	0.	0.	0.	0.
9/11	14.	0.	0.	0.	0.	0.	0.
9/12	21.	0.	0.	0.	0.	0.	0.
9/13	12.	0.	0.	0.	0.	0.	0.
9/14	1.	0.	0.	0.	0.	0.	0.
9/15	8.	0.	0.	0.	0.	0.	0.
9/16	22.	0.	0.	0.	0.	0.	0.
9/17	11.	0.	0.	0.	0.	0.	0.
9/18	0.	0.	0.	0.	0.	0.	0.
9/19	0.	0.	0.	0.	0.	11.	11.
9/20	0.	0.	0.	0.	0.	0.	0.
9/21	0.	0.	0.	0.	0.	0.	0.
9/22	0.	0.	0.	0.	0.	0.	0.
9/23	0.	0.	0.	0.	0.	0.	0.
9/24	0.	0.	0.	0.	0.	1.	0.
9/25	0.	0.	0.	0.	0.	0.	0.
9/26	0.	0.	0.	0.	0.	0.	0.
9/27	0.	0.	0.	0.	0.	0.	0.
9/28	0.	0.	0.	0.	0.	0.	0.
9/29	0.	0.	0.	0.	0.	0.	0.
9/30	2.	0.	0.	0.	0.	0.	0.

TABLE II.
DOWNTIME HOURS FOR ATLANTIC RICHFIELD MONITORING PROJECT

TRAILER 023 TOTAL CALIBRATION TIME= 0.0 HOURS

DATE	COMPUTER	NOX	NO	SO2	THC	CH4	CO	O3	H2S	WS	WD	RH	TEMP
9/ 1	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/ 2	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/ 3	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/ 4	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/ 5	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/ 6	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/ 7	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/ 8	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/ 9	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/10	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/11	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/12	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/13	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/14	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/15	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/16	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/17	18.	0.	0.	0.	6.	6.	6.	0.	0.	0.	0.	0.	0.
9/18	5.	0.	0.	0.	19.	19.	19.	0.	0.	0.	0.	0.	0.
9/19	15.	0.	0.	0.	9.	9.	9.	0.	0.	0.	0.	0.	0.
9/20	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/21	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/22	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/23	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/24	24.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/25	15.	9.	0.	0.	7.	1.	0.	0.	0.	0.	0.	0.	0.
9/26	0.	24.	0.	0.	24.	0.	0.	0.	0.	0.	0.	1.	0.
9/27	0.	24.	0.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.
9/28	9.	14.	1.	0.	5.	0.	0.	0.	0.	0.	0.	0.	0.
9/29	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9/30	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TA E II.
DOWNTIME HOURS FOR ATLANTIC RICHFIELD MONITORING PROJECT

TRAILER 024 TOTAL CALIBRATION TIME= 0.0 HOURS

DATE	COMPUTER	SO2	H2S	WS	WD	RH	TEMP
9/ 1	24.	0.	0.	0.	0.	0.	0.
9/ 2	24.	0.	0.	0.	0.	0.	0.
9/ 3	24.	0.	0.	0.	0.	0.	0.
9/ 4	24.	0.	0.	0.	0.	0.	0.
9/ 5	24.	0.	0.	0.	0.	0.	0.
9/ 6	24.	0.	0.	0.	0.	0.	0.
9/ 7	24.	0.	0.	0.	0.	0.	0.
9/ 8	24.	0.	0.	0.	0.	0.	0.
9/ 9	24.	0.	0.	0.	0.	0.	0.
9/10	24.	0.	0.	0.	0.	0.	0.
9/11	24.	0.	0.	0.	0.	0.	0.
9/12	24.	0.	0.	0.	0.	0.	0.
9/13	24.	0.	0.	0.	0.	0.	0.
9/14	24.	0.	0.	0.	0.	0.	0.
9/15	24.	0.	0.	0.	0.	0.	0.
9/16	24.	0.	0.	0.	0.	0.	0.
9/17	24.	0.	0.	0.	0.	0.	0.
9/18	24.	0.	0.	0.	0.	0.	0.
9/19	24.	0.	0.	0.	0.	0.	0.
9/20	24.	0.	0.	0.	0.	0.	0.
9/21	24.	0.	0.	0.	0.	0.	0.
9/22	24.	0.	0.	0.	0.	0.	0.
9/23	24.	0.	0.	0.	0.	0.	0.
9/24	24.	0.	0.	0.	0.	0.	0.
9/25	24.	0.	0.	0.	0.	0.	0.
9/26	24.	0.	0.	0.	0.	0.	0.
9/27	24.	0.	0.	0.	0.	0.	0.
9/28	24.	0.	0.	0.	0.	0.	0.
9/29	24.	0.	0.	0.	0.	0.	0.
9/30	24.	0.	0.	0.	0.	0.	0.

V. METEOROLOGICAL SUMMARY

A. Summary of the Major Features of the General Circulation Affecting Western Colorado

The domination of the upper air flow pattern by meridional characteristics which existed during August continued into the month of September over the North American continent. The long-wave circulation alternated between meridional and zonal flow throughout the month, with each regime lasting for a period of about five days. However, the periods of large amplitude in the long-waves were dominant in relation to the mean circulation pattern.

The mean position of the axis of the long-wave trough during September was located through the central part of North America as it was during the month of August. This circulation pattern produced below normal temperatures and above normal precipitation from the Rocky Mountains eastward to the Appalachians. Rainfall was slightly above normal and temperatures were slightly below normal along the Atlantic Coast. Temperatures were above normal and precipitation was below normal in western North America because of the persistence of the upper ridge in that region. However, the southwestern United States was an exception to the generally dry conditions in the west because of a succession of cold-core low pressure areas aloft which cut off from the main flow and settled over Arizona. These cutoff lows in combination with an abundance of moist air at high altitudes off the Pacific Ocean resulted in copious amounts of rainfall in Arizona, New Mexico, and the western half of Texas during September. El Paso, Texas, for instance, had measurable precipitation on 12 days during September, with a total rainfall for the month of 6.68 inches, which is 5.52 inches above normal.

September also produced two powerful hurricanes, Carmen and Fifi. Hurricane Carmen achieved landfall south of New Orleans, Louisiana, during the evening of September 7th. Hurricane Fifi had a landfall near Belize in Central American on September 19th. However Fifi eventually meandered through Central American into the Pacific Ocean, where it regenerated into Pacific Hurricane Orlene. Orlene then tracked northward toward the Baha Peninsula and was eventually partly responsible for the heavy rains in the southwestern United States on September 22nd, 23rd, and 24th, as its moisture became entrained in the subtropical jet stream which traveled over the Pacific Ocean and then over Mexico, New Mexico, and Texas.

Meteorological events on September 1st centered on the meridional flow enveloping North America. A strong blocking ridge was centered off British Columbia, while a large amplitude trough extended from Hudson's Bay to Oregon. A strong cold front, featuring several surface waves, extended on a northwest-southeast line through Colorado. The blocking ridge aloft began to weaken on September 2nd and the entire long-wave trough began to move eastward rapidly as the next long-wave trough in the hemispherical flow pattern dug southeastward at 150° W latitude. The surface continental polar cold front strengthened at this time and pushed westward over the Tract C-b region during the morning, bringing much cooler temperatures to the area.

By September 3rd, the polar front jet stream had weakened considerably and the long-wave trough axis had moved eastward to a position at 90° W latitude. Correspondingly, the long-wave ridge in western North America also weakened considerably. As a result, the plateau region of Colorado had mild, fair weather and light winds with a warming trend beginning to develop in the area.

September 4th featured the weakening of all of the prominent weather systems in North America. The long-wave trough, which was still centered along 90° W, weakened further as did the ridge in the west. Mild, fair weather and light winds continued at Tract C-b because of the subsiding air aloft and the gradually weakening surface pressure gradient. By September 5th, the upper circulation showed definite zonal tendencies. However, a strong short-wave in the northern Rockies was digging through what remained of the long-wave ridge at this time. The maritime polar cold front associated with this short-wave trough moved rapidly through Colorado during the day, cooling temperatures slightly and causing a few showers which were mostly orographic in nature.

On September 6th the short-wave began to dig into the long-wave trough position over central North America after having passed through the ridge position. The 500-millibar flow was basically weak. A weak surface high pressure area was centered over northern Arizona, causing warm temperatures, light winds, and generally fair skies in western Colorado. September 7th brought little change in the meteorological conditions at the Tract C-b. The weak surface high was now centered over central Colorado and ridging aloft was building northward into the state. Skies remained clear and temperatures were warm, much above normal for the time of year. Because of the weak pressure gradient, winds remained light and orographic wind systems (valley and mountain circulations) were well developed.

On September 8th, a weak, zonal 500-millibar flow prevailed over North America with slight ridging over the plateau region. A surface high was again centered in Colorado. Temperatures were well above normal with some orographic showers over the Rocky Mountains to the east; winds were fairly light. September 9th was a continuation of the zonal pattern over North

America. Temperatures were once again well above normal throughout western Colorado. Scattered showers continued to dot the region. A weak surface low began to develop in the vicinity of Grand Junction.

September 10th signaled an end to the zonal flow of the previous few days as a strong short-wave began to dig over the northwestern coast of the United States. The developing surface low of the previous day was stationary over western Colorado and eastern Utah. A strong continental polar cold frontal system began to organize in northern Montana. The extremely hot weather continued over western Colorado, but the showers became more numerous and the surface winds increased in strength as the low deepened.

September 11th saw rapid changes occur in the long-wave pattern. The short-wave continued to dig southward in the western United States, as lee cyclogenesis took place in southeastern Colorado. In conjunction with the digging trough, a long-wave ridge began to build northward upstream around 130° W. The surface low over western Colorado remained intact and was fairly strong (996 millibars). The cold front over the northwestern United States advanced steadily southeastward, passing through the Tract C-b region during the late afternoon. This frontal passage brought showers and thundershowers, a sharp drop in temperatures, and strong winds to the area. By September 12th the upper flow was strongly meridional, with the long-wave ridge continuing to build in the Gulf of Alaska and the long-wave trough amplifying over the plateau states. The cessation of positive vorticity advection over the region during the early morning hours resulted in clear skies during the remainder of the day, but temperatures were nevertheless much lower than those of the preceding day because of the continuing cold air advection. Winds diminished in strength during the day.

On September 13th another short-wave trough dug southward into the long-wave trough position over western North America. However, the short-wave trough had the effect of tilting the mean long-wave trough axis to a southwest-northeast line. Also, the vorticity from this system hung back over Nevada and Utah as the rest of the long-wave moved eastward slightly. The development was the beginning of the first of a series of cold-core cutoff lows over the southwestern United States. Cloudiness and a few showers also returned to western Colorado because of this system. Temperatures on the 13th moderated somewhat from the cool temperatures of the preceding day. Winds were generally light and variable.

By September 14th, a cold low aloft had formed over northeastern Nevada. As a result, cloudiness and showers were widespread over the western half of Colorado and all of Utah. Temperatures were mild and the winds were light and variable. On the 15th of September the 500-millibar low was over northern Arizona. Widespread rains continued over Colorado, as temperatures varied little from those of the 14th and light winds prevailed because of a weak surface pressure gradient.

By September 16th the low aloft had moved northeastward to the vicinity of Grand Junction and had filled slightly. Therefore, the rains and cloudiness decreased somewhat in western Colorado, although showers and thundershowers were still scattered around the region during the afternoon. Temperatures remained mild and winds remained light. On September 17th, the upper ridge which had extended from California to British Columbia during the preceding three days weakened as a short-wave pushed over it and began to drop into the central part of North America. The weak cyclonic circulation aloft remained over the southwestern United States, centered over central Arizona. A few cumulonimbus clouds were scattered over the area during the afternoon. A warming trend began to effect the region, although winds were still rather light.

On September 18th another strong short-wave pushed through the long-wave ridge and dug into Alberta, Canada. The weak cutoff low circulation retrograded slightly to southwestern Arizona. Temperatures continued their warming trend and cloudiness decreased somewhat over the Tract C-b region. The cutoff remained stationary over Arizona on the 19th, but the upper flow pattern became more meridional as a ridge built northward in the Gulf of Alaska and a strong short-wave trough dug southward just east of the Rockies. Although a small surface low developed in eastern Utah, skies were clear throughout northwestern and west central Colorado. Winds were generally light.

On September 20th the strong meridional flow pattern continued, with a ridge in the Gulf of Alaska and a long-wave trough through central North America. The now strengthening stationary cold low aloft was centered over extreme southwestern Arizona. A cold front eased through the area from the east during the late afternoon but affected temperatures only minimally; the main effects of the front being a drying of the air and a shifting of the winds to a northerly direction. Skies remained clear throughout the day. The low aloft over the southwestern United States drifted southward into Mexico and filled slightly on the 21st and the meridional nature of the upper circulation over North America continued on this day. Western Colorado was clear and warm because of the subsiding air from the upper ridge to the west. Local circulations (anabatic and katabatic flows) were well developed on the 21st.

On September 22nd the cold cutoff low over southwestern Arizona strengthened once again as cold air was advected into it.

Meridional flow continued over North America as the long-wave trough axis progressed eastward to a position through the Ohio River Valley. Meanwhile, the remains of Atlantic Hurricane Fifi, which had slammed into Belize in Central America three days earlier, reorganized into Pacific Hurricane Orlene and moved northward toward the Baja Peninsula. Generally, partly cloudy skies prevailed over western Colorado on this day, with warm temperatures, light winds, and a few showers scattered over the region.

The generally meridional long-wave pattern progressed slightly eastward on September 23rd. The low aloft remained stationary over southwestern Arizona and a small surface low and weak lee trough began to develop over northeastern Colorado. This troughing action shifted the winds to a northwesterly direction during the afternoon, in western Colorado, but the wind speeds remained low. Skies were clear throughout the area except for a few orographic showers and temperatures were mild at the Tract C-b.

Several large-scale changes occurred on September 24th. The cutoff low over Arizona weakened, as did the entire meridional pattern over North America. However, a strong short-wave in the Gulf of Alaska began to work its way through the long-wave ridge off the western coast of Canada. Scattered cloudiness and a few showers returned to western Colorado, but temperatures remained warm. Winds increased in speed somewhat. By September 25th the long-wave pattern became zonal across the United States. However, the strong short-wave continued its southeastward progression through British Columbia. Scattered cloudiness, a few showers, mild temperatures, and generally light winds prevailed over western Colorado.

A zonal flow pattern existed over North American on September 26th. The cold low aloft which had persisted over the southwestern United States for the past twelve days was finally ejected northeastward into Oklahoma by the strong short-wave in the northwest, which had reached the Washington coast. A strong maritime polar cold front organized along the northwestern United States-Canada border. Meteorological conditions in the Tract C-b region changed little from those of the previous day, with partly cloudy skies, scattered afternoon showers, light winds, and mild temperatures in the area.

Rapid changes occurred on September 27th. The strong short-wave dug southward over the west central United States as a strong maritime polar cold front rushed through the Intermountain region of the western United States. The cold front passed through the Tract C-b region during the late morning, causing scattered showers, strong northwesterly winds, some blowing dust, and much cooler temperatures. Skies cleared by sunset. By September 28th the short-wave and cold frontal system had continued to move southeastward rapidly and had reached the central section of North America. Surface and upper ridging affected western Colorado, causing freezing temperatures (during the night), clear skies, and diminishing northwesterly winds.

A broad long-wave troughing pattern enveloped North American on September 29th with several strong short-waves entrenched in the flow. The jet stream and its baroclinicity retreated northward to a Montana-South Dakota line. Subsiding air continued to affect western Colorado, causing clear skies, moderating temperatures, light winds, and extremely dry conditions. The long-wave pattern became more zonal on September 30th as fast polar jet stream westerlies affected the northern sections of the United States. Meteorological conditions in the Tract C-b area changed little from those of the previous day, with continuing clear skies, light winds, mild temperatures, and very dry air.

B. Micrometeorology of the Tract C-b Region

The Piceance Creek Basin is subject to local circulations (anabatic and katabatic winds) of varying intensities throughout the year. These flows are best organized when clear skies and a weak pressure gradient prevail over the area, conditions which are rather common in western Colorado. During the night the higher elevations cool more rapidly than the valley floor, causing cold, dense air to collect and flow toward lower elevations. During the day the opposite effect occurs, in that the higher elevations receive more direct insolation earlier in the day, causing them to warm more rapidly. The resultant density difference between the valley tops and valley floor causes an anabatic flow, with winds blowing up the valley floor and walls.

Considering the Piceance Creek Basin and the three monitoring trailers located in this valley, the valley-mountain flow regime is very evident. Trailer 022 has the most eastern location of the three trailers in this valley and has the highest elevation above mean sea level. Trailer 021 is located at the western end of the valley and has the lowest elevation above mean sea level. Trailer 020 is intermediate in both location and elevation. These location and elevation differences cause micrometeorological effects to appear in the data as a result of the dominant anabatic-katabatic flow regime in the valley.

For instance, considering the diurnal variations of wind speeds at these three trailers, winds are strongest (6 mph) on the average at Trailer 022 which has the highest elevation. Winds were lightest on the average during September at Trailer 021, which is at the lower end of the valley. The diurnal wind speed distribution for these three trailers indicates that the katabatic (downslope) wind is strongest at Trailer 022 and weakest at Trailer 021. Conversely, the anabatic (upslope) wind is most strongly developed at Trailer 020 and equal in intensity at the other two trailers. That is, nighttime winds are strongest at Trailer 022 and weakest at Trailer 021. Daytime winds are strongest at Trailer 020.

These winds have a profound influence on the temperatures experienced in all three locations. Trailer 022 has the highest mean temperatures. It is warmest at night because radiational cooling is inhibited by the relatively strong winds. Conversely, Trailer 021 has the lowest mean temperatures. This is because nighttime winds are lightest at this location, allowing excellent radiational cooling. Also, cool air from the eastern portions of the Piceance Creek valley drains into this area and settles, causing colder nighttime readings. Moreover, daytime high temperatures are highest at Trailer 022 and lowest at Trailer 021. Temperatures in the valley during September generally averaged 53.5°F, with an average maximum temperature of 71°F and an average minimum of 37°F. The highest maximum temperature for September was 93°F at Trailer 020 on the 9th and the minimum was 14°F for the 30th at Trailer 021.

Relative humidities during September averaged 50% in the valley. On a diurnal basis the average maximum relative humidity values of 75% occurred at 0800 hours. The average minimum values, about 28%, occurred at 1800 hours. The highest mean humidities occurred at Trailer 022 and the lowest mean humidities were at Trailer 021. Humidities of less than 15% were common at Trailer 021 during the last half of September.

The existence of a local circulation cell in this valley (anabatic-katabatic) is evident upon inspection of the wind direction data. Winds are generally east-southeasterly at all valley trailers during the night when the katabatic flow dominates and west-northwesterly during the day when the anabatic circulation takes effect. On days during September with well developed upslope-downslope flow characteristics winds were easterly (90° to 110°) and downslope during the nighttime period from 1900 hours to 800 hours. The winds then went through a transition period for the next two hours, backing into the north and then into the west-northwest (300°) by 1000 hours. These anabatic winds usually prevailed until approximately 1800 hours, at which time they would abruptly veer to a northerly direction and then settle into an easterly direction, usually by 1900 hours, as the katabatic flow again took over.

Conditions at the Tract C-b itself, up on the plateau, were somewhat different. In particular, the anabatic-katabatic circulation cell is not as well developed on the plateau. Also, the cooler air generally drains into the valley from the plateau, causing two main effects: (1) the depth of the ground-based radiation inversion is rather shallow (averaging slightly more than 100 feet in depth during September), and (2) temperatures at night are not as low during radiational cooling nights as they are in the valley.

Because the upslope-downslope flow does not effect the tract to the extent that it does the valley, wind directions on the plateau have a high frequency from the southwestern quadrant, in connection with the geostrophic flow (large-scale flow related to pressure gradients). In particular, the 200-foot level of the tower has a very high frequency of southwesterly winds, even at night when the lower tower levels are enveloped by a ground-based radiation inversion and drainage flow.

Winds can be rather strong on the plateau and around the tower site. The highest hourly average wind speed recorded during September was 24 miles per hour on September 27th, as a strong cold front passed the area. Winds increased in speed with height during September, as was to be expected. The average wind speed at the 100-foot level for the month was 9 mph, higher than in the valley.

The air was much drier on the plateau than in the valley (moisture occasionally becomes trapped in the valleys) during September. Humidities for the month averaged in the low 30's.

Mean temperatures for the month of September were slightly higher on the plateau than the valley. Daytime temperatures averaged about 2 degrees lower at the tower site then in the valley, but nighttime temperatures were about 5°F higher, with an average minimum temperature of 42°F and an average maximum of 69°F. The average temperature at 200 feet was 55°F, but the diurnal range of temperatures was smaller than at the lower tower levels.

VI. DATA PRESENTATION AND SUMMARIES

This section provides summaries of all the data collected during this reporting period. All data except particulates are sampled once each second, but recorded as five-minute arithmetic averages of the one-second sample. Particulates are determined as a twenty-four hour average.

Table III displays the monthly statistics for each monitoring station for the month. To insure statistical significance, and to reduce the possibility of introducing a bias in the presentation, averages are computed only when at least 50 percent of the samples are present, except for relative humidity and temperature, in which case 75 percent of the samples are required. If less than the required samples are present for a particular parameter, that entry will be blank. The daily averages are displayed in Table IV. The averages in Tables III and IV are arithmetic averages except for wind speed and direction in which case a vector average is utilized. Table V presents the maximum five-minute average retained in the data base as well as time of occurrence. Table VI shows the five highest sliding averages of various pollutants for different averaging times. The averaging times are chosen to allow comparison to ambient air standards.

To demonstrate the functional dependence of recorded parameters upon wind direction, Table VII shows pollutant concentration displayed in a bi-variate distribution with wind direction. The tables display the total number of five-minute samples occurring in each concentration and wind speed class. The mean concentration for all samples occurring in each wind class are also shown. This distribution demonstrates the dependence of high pollutant concentrations upon wind direction.

Figures IV-1 demonstrate the diurnal variation of all recorded parameters. The graphical presentation shows the average value for the month of the recorded parameter during each of the 24 hours of the day.

To facilitate comparison of recorded concentrations to ambient air quality standards, the following regulations are presented.

COMPARISON OF NEW FEDERAL AND COLORADO AIR QUALITY STANDARDS

	FEDERAL STANDARD		COLORADO				
			NON-DESIGNATED AREA			DESIGNATED AREA	
SUBSTANCE	PRIMARY	SECONDARY		1973		1976	1980
Particulate							
Annual G. M.	75ug/m3	60ug/m3	45ug/m3	70ug/m3		55	45
24 hr. Max.*	260	150	150	200		180	150
Sulfur Oxides							
Annual G. M.	80(.03ppm)		--	60(.020ppm)		25(.009)	10(.00
24 hr. Max.*	365(.14ppm)		15(.0050ppm)	300(.1ppm)		150(.05)	55(.02
3 hr. Max.*	--	1300(.5ppm)	--	--		--	--
1 hr. Max.**	--	--	--	800(.28ppm)		300(.1)	--
Oxidant					PROPOSED (DAQCR)		
1 hr. Max.*	160(.08ppm)	160	--	98	(0.05ppm)		
8 hr. Max.*	--	--	--	59	(0.03)		
Annual	--	--	--	20	(0.01)		
Hydrocarbons							
3 hr. Max.* 6-9 am.	160(.24ppm)	160	--				
1 hr.	--	--	--	6560(10 ppm)			
8 hrs.	--	--	--	3280(5 ppm)			
Annual	--	--	--	1312(2)			
Carbon Monoxide mg/m^3							
Max. 8 hrs.*	10(9ppm)	10	--	11,450 (10ppm)			
Max. 1 hr.*	40(35ppm)	40	--	28,625 (25)			
Max.12 hrs.*	--	--	--	--			
Annual	--	--	--	2,290 (2)			
Nitrogen Oxides							
Annual A.M.	100(.05 ppm)	100	--	--			
24 Hr. Max.	--	--	--	--			
1 Hr. Max.	--	--	--	--			

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*Not to be exceeded more than once a year

**Not to be exceeded more than once per month

TABLE III. AVERAGES FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	NITROGEN OXIDE(NOX)		NITRIC OXIDE(NO)		NITROGEN DIOXIDE(NO2)	
SITE	020	023	020	023	020	023
	7.0		1.0		5.9	

	TOTAL HYDROCARBONS		METHANE		NON-METHANE HYDROCARBONS	
SITE	020	023	020	023	020	023

	CARBON MONOXIDE		OZONE		RAIN (TOTAL INCHES)	
SITE	020	023	020	023	020	023
	1113.9		41.6		0.00	0.00

	SULFUR DIOXIDE(SO2)					PARTICULATE				
SITE	020	021	022	023	024	020	021	022	023	024
	9.1	5.6	9.4							

	HYDROGEN SULFIDE					TEMPERATURE OUTSIDE				
SITE	020	021	022	023	024	020	021	022	023	024
	1.5	5.2	1.1			53.2	52.7	53.9		

	WIND SPEED				WIND DIRECTION				RELATIVE HUMIDITY			
SITE	020	021	022	024	020	021	022	024	020	021	022	024
	0.3	0.1	1.7		153.4	1.2	93.6		50.1	46.6	51.9	

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                    TABLE III. AVERAGES FOR SEPT  1 THRU 30
       (UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER;  WIND SPEED-MILES PER HOUR;
            TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

         WIND SPEED           WIND SPEED           WIND SPEED           WIND SPEED
           (6-FT)               (30-FT)              (100-FT)             (200-FT)

SITE        023                  023                  023                  023
                                                       1.4                  1.4
------------------------------------------------------------------------------------------

       WIND DIRECTION       WIND DIRECTION       WIND DIRECTION       WIND DIRECTION
           (6-FT)               (30-FT)              (100-FT)             (200-FT)

SITE        023                  023                  023                  023
                                                     225.0                225.0
------------------------------------------------------------------------------------------

      RELATIVE HUMIDITY    RELATIVE HUMIDITY    RELATIVE HUMIDITY    RELATIVE HUMIDITY
           (6-FT)               (30-FT)              (100-FT)             (200-FT)

SITE        023                  023                  023                  023
------------------------------------------------------------------------------------------

     TEMPERATURE OUTSIDE  TEMPERATURE OUTSIDE  TEMPERATURE OUTSIDE  TEMPERATURE OUTSIDE
           (6-FT)               (30-FT)              (100-FT)             (200-FT)

SITE        023                  023                  023                  023
------------------------------------------------------------------------------------------

     BAROMETRIC PRESSURE

SITE        023
      0.0
------------------------------------------------------------------------------------------
```

TABLE IV. DAILY AVERAGES FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	NITROGEN OXIDE(NOX)		NITRIC OXIDE(NO)		NITROGEN DIOXIDE(NO2)	
SITE DATE	020	023	020	023	020	023
9/ 1						
9/ 2						
9/ 3						
9/ 4						
9/ 5						
9/ 6						
9/ 7						
9/ 8			0.0			
9/ 9						
9/10	0.0		0.0		0.0	
9/11	0.0		0.0		0.0	
9/12	0.0		0.0		0.0	
9/13	4.8		4.1		0.5	
9/14	0.0		0.0		0.0	
9/15	0.0		0.0		0.0	
9/16	2.1		0.8		1.3	
9/17	5.4		2.4		3.0	
9/18	8.8	0.0	2.7	0.0	6.1	0.0
9/19	9.1		1.0		8.1	
9/20						
9/21	11.1		1.1		10.0	
9/22						
9/23						
9/24	11.1		1.1		14.0	
9/25	11.9		1.2		10.7	
9/26	12.3		1.2	3.0	11.1	
9/27	11.3		0.8	0.2	10.5	
9/28	10.8		1.5	11.7	9.3	
9/29	8.5	104.1	1.4	17.1	7.1	87.0
9/30	10.7	83.5	1.1	71.2	9.7	12.3

TABLE IV. DAILY AVERAGES FOR SEPT 1 THRU 30

(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	TOTAL HYDROCARBONS		METHANE		NON-METHANE HYDROCARBONS	
SITE	020	023	020	023	020	023
DATE						
9/ 1			1330.5			
9/ 2			1445.7			
9/ 3			1342.3			
9/ 4			1447.9			
9/ 5			1423.9			
9/ 6			1447.2			
9/ 7			1569.1			
9/ 8			1404.8			
9/ 9						
9/10			858.2			
9/11						
9/12						
9/13	644.0					
9/14						
9/15						
9/16						
9/17						
9/18	386.7					
9/19						
9/20						
9/21	414.2					
9/22						
9/23						
9/24	427.4					
9/25	420.8					
9/26	415.6			1710.9		
9/27	423.8			1732.7		
9/28	421.4			1826.6		
9/29		2269.2		1766.2		487.2
9/30		2331.2		1842.3		489.0

TABLE IV. DAILY AVERAGES FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	CARBON MONOXIDE		OZONE		RAIN (TOTAL INCHES)	
SITE	020	023	020	023	020	023
DATE						
9/ 1			12.9			
9/ 2			2.3			
9/ 3			9.1			
9/ 4			7.3			
9/ 5	240.1		7.0			
9/ 6	222.4		3.3			
9/ 7	240.8		2.2			
9/ 8	324.9		9.8			
9/ 9	376.6		36.9			
9/10			74.8			
9/11	1399.0		59.8			
9/12	1465.6		32.8			
9/13	1578.4		42.6			
9/14	1473.4		53.5			
9/15	1423.1		47.2			
9/16	1417.3		43.3			
9/17	1083.9		46.6			
9/18	1376.9		45.9	0.0		
9/19	1376.2		54.3			
9/20						
9/21	1435.9		55.8			
9/22						
9/23						
9/24	1416.0		63.6			
9/25	1322.4		65.4			
9/26	1265.3	1623.7	67.9	48.2		
9/27	1297.7	1637.5	71.3	50.5		
9/28	1275.3	1713.4	64.2	62.4		
9/29		1598.8	63.4	71.0		0.00
9/30		1543.7	65.9	67.1		0.00

TABLE IV. DAILY AVERAGES FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	SULFUR DIOXIDE(SO2)					PARTICULATE				
SITE DATE	020	021	022	023	024	020	021	022	023	024
9/ 1	0.0	0.3	0.0							
9/ 2	0.0	0.2	0.0							
9/ 3	0.0	0.2	0.0							
9/ 4	0.0	0.0	0.0							
9/ 5	0.0	0.0								
9/ 6	0.0	0.0								
9/ 7	0.0	0.0								
9/ 8	0.0	0.4								
9/ 9	0.0	0.5								
9/10	0.0	36.3								
9/11	0.0	142.5								
9/12	0.0	0.0								
9/13	4.4	0.0								
9/14	42.5	0.0	35.6							
9/15	90.3	0.0	55.2							
9/16	51.0	0.6								
9/17	58.2	0.0	24.9							
9/18	5.7	0.0	5.4	1.7						
9/19	0.1	0.0	0.0							
9/20		0.0	0.0							
9/21	0.2	0.0	0.0							
9/22		0.0	0.0							
9/23		0.0	0.0							
9/24	0.1	0.0	0.0							
9/25	0.1	0.0	0.0							
9/26	0.1	0.0	0.0	11.6						
9/27	0.1		0.0	6.8						
9/28	0.0		0.0	10.2						
9/29	0.1		0.0	6.6						
9/30	0.0	0.6	110.1	4.1						

TABLE IV, DAILY AVERAGES FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	HYDROGEN SULFIDE					TEMPERATURE OUTSIDE				
SITE DATE	020	021	022	023	024	020	021	022	023	024
9/ 1	0.0		0.0			65.8	66.1	67.1		
9/ 2	0.0		0.0			53.3	53.3	55.6		
9/ 3	0.0		0.3			52.6	52.3	55.8		
9/ 4	0.0		1.6			58.2	57.0	60.2		
9/ 5	0.0					64.3	64.3			
9/ 6	0.3					60.3	59.3			
9/ 7	0.0					59.0	58.4			
9/ 8	0.0					63.6	62.0			
9/ 9	0.0					70.4	63.0			
9/10	0.0					76.0	69.5			
9/11	0.1	93.3					66.9			
9/12	0.0	0.0					45.7			
9/13	0.9	0.0				40.3	36.8			
9/14	8.1	0.0	0.9			46.3	43.1	48.1		
9/15	15.7	0.0	1.6			47.5	46.4			
9/16	7.0	0.0				52.3	52.2			
9/17	9.7	0.0	4.7			48.7	47.6			
9/18	0.0	0.0	3.8	0.0		51.9	49.0	55.8	57.1	
9/19	0.0	0.0	0.0			53.8	50.7			
9/20		0.0	0.0				46.8	53.1		
9/21	0.1	0.0	0.0			46.8	46.2	52.1		
9/22		0.0	0.0				47.6	54.0		
9/23		0.0	0.3				51.0	55.2		
9/24	0.0	0.0	0.0			51.0	48.7	54.2		
9/25	0.0	0.0	4.9			51.6	48.8	53.5		
9/26	0.0	0.0	0.0	0.0		52.0	51.9	53.3	58.4	
9/27	0.0		0.4	0.0		41.4		42.9	47.5	
9/28	0.0		0.0	0.5		40.1		42.5		
9/29	0.0		0.0	0.3		44.5		48.2	52.8	
9/30	0.0	15.5	0.0	0.2		46.3	43.9	54.0	54.9	

TABLE IV. DAILY AVERAGES FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	WIND SPEED				WIND DIRECTION				RELATIVE HUMIDITY			
SITE DATE	020	021	022	024	020	021	022	024	020	021	022	024
9/ 1	2.3		0.7		288.5		247.5		29.7	27.6	33.8	
9/ 2	4.3		4.0		314.2		276.0		53.1	53.3	56.2	
9/ 3	0.6		1.6		160.3		93.1		42.5	42.6	45.7	
9/ 4	1.1		3.1		113.4		103.9		32.7	32.8	35.1	
9/ 5	1.8				294.5				34.3	33.2		
9/ 6	0.4				287.1				39.7	41.3		
9/ 7	1.4	1.0			128.4	78.7			32.5	32.9		
9/ 8	2.1	1.2			176.0	151.9			31.8	31.4		
9/ 9	1.4	0.5			141.2	152.8			37.0	39.8		
9/10	2.6	4.0			205.4	118.5			35.6	34.6		
9/11	2.5	5.3			329.9	312.6			52.6	44.9		
9/12	3.0	3.7			310.9	299.6			88.8	83.5		
9/13	1.6	1.3			309.4	297.9			63.9	64.3		
9/14	1.2	1.9	1.4		128.3	104.8	96.4		74.9	71.2	78.6	
9/15	0.4	1.4	0.1		146.2	107.4	137.5		91.0	85.4		
9/16	0.5	0.5			124.8	30.6			73.2	67.5		
9/17	3.7	2.7	4.6		128.1	96.9	92.6		65.2	60.2		
9/18	0.8	0.2	2.9		114.0	293.9	94.5		59.4	55.6	61.1	
9/19	0.4	0.9	1.7		351.3	296.1	270.9		49.8	49.7		
9/20		3.2	0.2			302.5	30.5			52.8	54.2	
9/21	0.1	0.3	1.0		119.1	329.0	96.9		56.2	53.9	57.4	
9/22		0.3	2.9			124.5	98.8			53.4	54.6	
9/23		0.6	4.4			116.5	96.8			49.3	52.4	
9/24	0.9	1.5	2.3		65.5	316.1	82.3		51.2	47.9	53.4	
9/25	2.7	1.5	4.6		148.4	100.4	99.8		50.5	47.9	54.9	
9/26	1.1	1.8	6.0		150.4	113.4	98.3		45.1	39.6	48.8	
9/27	2.9		1.3		357.7		14.2		45.8		51.8	
9/28	1.5		1.4		148.1		69.1		53.2		56.7	
9/29	1.9		4.9		128.1		95.1		37.4		39.3	
9/30	1.6	0.4	4.8		136.9	202.8	97.2		34.5	28.7	31.8	

TABLE IV. DAILY AVERAGES FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	WIND SPEED (5-FT)	WIND SPEED (30-FT)	WIND SPEED (100-FT)	WIND SPEED (200-FT)
SITE	023	023	023	023
DATE				
9/ 1				
9/ 2				
9/ 3				
9/ 4				
9/ 5				
9/ 6				
9/ 7				
9/ 8				
9/ 9				
9/10				
9/11				
9/12				
9/13				
9/14				
9/15				
9/16				
9/17				
9/18	0.8	1.1	1.8	
9/19				
9/20				
9/21				
9/22				
9/23				
9/24				
9/25				
9/26	1.7	3.0	4.7	
9/27	5.4	7.0	7.0	
9/28	2.6		5.8	
9/29	0.8		1.1	
9/30	0.7		0.4	

TABLE IV. DAILY AVERAGES FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	WIND DIRECTION (6-FT)	WIND DIRECTION (30-FT)	WIND DIRECTION (120-FT)	WIND DIRECTION (240-FT)
SITE	023	023	023	023
DATE				
9/ 1				
9/ 2				
9/ 3				
9/ 4				
9/ 5				
9/ 6				
9/ 7				
9/ 8				
9/ 9				
9/10				
9/11				
9/12				
9/13				
9/14				
9/15				
9/16				
9/17				
9/18	318.3	337.9	355.2	
9/19				
9/20				
9/21				
9/22				
9/23				
9/24				
9/25				
9/26	219.3	203.0	197.5	
9/27	317.9	310.7	295.8	
9/28	227.7		199.4	
9/29	87.5		74.2	
9/30	158.6		193.3	

TABLE IV. DAILY AVERAGES FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

SITE DATE	RELATIVE HUMIDITY (6-FT) 023	RELATIVE HUMIDITY (30-FT) 023	RELATIVE HUMIDITY (100-FT) 023	RELATIVE HUMIDITY (200-FT) 023
9/ 1				
9/ 2				
9/ 3				
9/ 4				
9/ 5				
9/ 6				
9/ 7				
9/ 8				
9/ 9				
9/10				
9/11				
9/12				
9/13				
9/14				
9/15				
9/16				
9/17				
9/18	45.3		41.2	47.1
9/19				
9/20				
9/21				
9/22				
9/23				
9/24				
9/25				
9/26	32.7	34.4	31.7	37.5
9/27	30.9	30.7	26.9	35.9
9/28				44.2
9/29	25.4	24.7	22.8	[illegible]
9/30	21.0	21.9	20.3	[illegible]

TABLE IV. DAILY AVERAGES FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

SITE DATE	TEMPERATURE OUTSIDE (6-FT) 023	TEMPERATURE OUTSIDE (30-FT) 023	TEMPERATURE OUTSIDE (100-FT) 023	TEMPERATURE OUTSIDE (200-FT) 023
9/ 1				
9/ 2				
9/ 3				
9/ 4				
9/ 5				
9/ 6				
9/ 7				
9/ 8				
9/ 9				
9/10				
9/11				
9/12				
9/13				
9/14				
9/15				
9/16				
9/17				
9/18	57.1			56.4
9/19				
9/20				
9/21				
9/22				
9/23				
9/24				
9/25				
9/26	58.4	59.2	58.9	53.7
9/27	47.5	48.3	47.7	47.7
9/28		44.1	45.0	44.[illegible]
9/29	52.8	54.6	53.4	53.7
9/30	54.9	58.3	5[illegible].5	57.[illegible]

TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	NITROGEN OXIDE(NOX)		NITRIC OXIDE(NO)		NITROGEN DIOXIDE(NO2)	
SITE DATE	020	023	020	023	020	023
9/ 1						
9/ 2						
9/ 3						
9/ 4						
9/ 5						
9/ 6						
9/ 7						
9/ 8			0.0(0:00)			
9/ 9						
9/10	0.0(0:00)		0.0(0:00)		0.0(0:00)	
9/11	0.0(0:00)		0.0(0:00)		0.0(0:00)	
9/12	0.0(0:00)		0.0(0:00)		0.0(0:00)	
9/13	70.9(12:55)		51.9(13:20)		50.4(12:55)	
9/14	0.0(0:00)		0.0(0:00)		0.0(0:00)	
9/15	3.2(23:55)		3.2(23:55)		0.0(0:00)	
9/16	9.3(19:45)		9.3(19:45)		8.0(22:10)	
9/17	21.4(13:45)		13.8(13:45)		15.9(22:00)	
9/18	64.8(3:50)	0.0(0:00)	64.8(3:50)	0.0(0:00)	15.7(20:35)	0.0(0:00)
9/19	25.8(23:45)		8.1(23:40)		25.8(23:45)	
9/20						
9/21	37.8(20:00)		9.7(23:25)		34.6(20:00)	
9/22						
9/23						
9/24	24.3(1:00)		9.5(10:10)		24.3(1:00)	
9/25	41.2(20:40)		8.1(2:00)		41.2(20:40)	
9/26	57.4(19:40)		11.3(3:35)	131.3(13:30)	61.1(19:40)	
9/27	35.0(8:45)		8.2(23:05)	43.4(4:50)	35.0(8:45)	
9/28	24.9(9:45)		13.4(7:30)	432.4(14:40)	22.2(20:00)	
9/29	21.7(7:25)	270.5(9:20)	9.5(19:20)	73.2(22:55)	21.7(7:25)	234.7(9:20)
9/30	672.7(16:05)	200.6(13:20)	9.9(4:10)	100.0(22:05)	672.7(16:05)	200.6(19:20)

TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

	TOTAL HYDROCARBONS		METHANE		NON-METHANE HYDROCARBONS	
SITE DATE	020	023	020	023	020	023
9/ 1			2671.3(6:00)			
9/ 2			2783.6(23:00)			
9/ 3			2796.3(1:15)			
9/ 4			2775.3(0:05)			
9/ 5			2747.9(6:20)			
9/ 6			2750.4(8:05)			
9/ 7			2804.2(7:45)			
9/ 8			2756.9(0:00)			
9/ 9						
9/10			905.4(2:40)			
9/11						
9/12						
9/13	2515.9(14:25)					
9/14						
9/15						
9/16						
9/17						
9/18	1724.9(9:30)					
9/19						
9/20						
9/21	582.7(6:35)					
9/22						
9/23						
9/24	544.0(1:00)					
9/25	602.2(20:40)					
9/26	593.7(0:35)			2017.5(6:35)		
9/27	572.7(21:00)			2089.3(22:40)		
9/28	596.7(4:20)			2266.8(2:25)		
9/29		2762.9(6:10)		2621.3(2:55)		1058.5(2:25)
9/30		2935.7(2:35)		2389.1(2:15)		1028.9(4:20)

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TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR SEPT  1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER;  WIND SPEED-MILES PER HOUR;
         TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

        CARBON MONOXIDE                              OZONE                             RAIN
                                                                                 (TOTAL INCHES)
  SITE          020              023              020              023              020              023
ATE
-----------------------------------------------------------------------------------------------------------
9/ 1                                           35.9(16:50)
9/ 2                                           19.3(19:30)
9/ 3                                           41.0(17:40)
9/ 4                                          155.6(13:45)
9/ 5       441.4(20:05)                        27.0(11:15)
9/ 6       423.6(15:40)                       104.7(11:05)
9/ 7       440.8(18:20)                        17.5(10:35)
9/ 8       539.6(20:00)                        43.7(15:10)
9/ 9      4552.7( 5:20)                       102.4(14:55)
9/10                                          113.5(13:25)
-----------------------------------------------------------------------------------------------------------
9/11      3542.7(20:30)                        82.9(16:10)
9/12      2155.3(20:00)                        59.0( 0:00)
9/13      4561.3(21:05)                       243.4(15:40)
9/14      1777.2(21:35)                        91.0(16:15)
9/15      1661.9(10:30)                        75.3(18:30)
9/16      1591.9(10:00)                        80.8(13:40)
9/17      4991.4( 3:40)                        95.6(14:25)
9/18      1961.0( 8:15)                        97.6(12:50)      0.0( 0:00)
9/19      1623.9( 8:00)                        86.4(11:30)
9/20
-----------------------------------------------------------------------------------------------------------
9/21      1973.0( 6:45)                        94.1(18:05)
9/22
9/23
9/24      1835.0( 8:45)                       390.8(16:15)
9/25      1817.2(20:45)                        99.6(15:45)
9/26      2131.8(19:45)    3105.8( 7:10)      107.3(11:40)     63.1( 6:25)
9/27      4702.7( 1:05)    3532.5( 2:50)      145.9(12:00)     80.4( 2:45)
9/28      1755.2( 4:20)    3400.7(21:50)       92.8(14:05)     95.3(15:50)
9/29                       4161.6(15:25)       88.1(10:15)    132.4( 2:20)                      0.30( 0:00)
9/30                       3718.7(13:05)      574.6( 6:05)    119.9( 4:20)                      0.02( 0:00)
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TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR SEPT  1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER;  WIND SPEED-MILES PER HOUR;
        TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

                                        SULFUR DIOXIDE(SO2)   (HH:MM)

 SITE          020              021              022              023              024
-----------------------------------------------------------------------------------------------
9/ 1       0.0( 0:00)       6.6( 6:40)       0.0( 0:00)
9/ 2       0.0( 0:00)       4.5( 5:20)       0.0( 0:00)
9/ 3       0.0( 0:00)       4.6( 3:50)       0.0( 0:00)
9/ 4       0.0( 0:00)       0.0( 0:00)       0.0( 0:00)
9/ 5       0.0( 0:00)       0.0( 0:00)
9/ 5       0.0( 0:00)       2.1(13:40)
9/ 7       0.0( 0:00)       2.2(23:35)
9/ 8       0.0( 0:00)       4.4( 4:40)
9/ 9       0.0( 0:00)      19.0(11:55)
9/10       0.0( 0:00)     464.6( 4:45)
-----------------------------------------------------------------------------------------------
9/11       0.0( 0:00)     742.1( 4:25)
9/12       0.0( 0:00)       0.0( 0:00)
9/13     249.7(14:25)       0.0( 0:00)
9/14     264.4(17:00)       0.0( 0:00)     416.9(21:00)
9/15     169.0( 0:00)       0.0( 0:00)    1726.4( 0:35)
9/16     184.5(22:35)      32.3(13:35)
9/17     195.9( 3:05)       2.3( 5:10)      46.7(12:50)
9/18     220.8( 5:05)       0.0( 0:00)      40.3( 2:40)       4.2(21:20)
9/19       8.9( 8:30)       2.3( 5:40)       2.2( 8:30)
9/20                        2.1(15:30)       0.0( 0:00)
-----------------------------------------------------------------------------------------------
9/21       4.5( 1:35)       6.5(19:50)       4.5( 2:55)
9/22                        2.3( 5:00)       4.5( 2:05)
9/23                        0.0( 0:00)       4.5( 4:40)
9/24       4.4(20:05)       0.0( 0:00)       2.2( 0:35)
9/25       2.3( 6:45)       0.0( 0:00)       4.5( 3:15)
9/26       4.5(22:25)       0.0( 0:00)       0.0( 0:00)      36.9(10:30)
9/27       2.3( 5:20)                        2.2(16:15)      17.3( 3:35)
9/28       4.5( 0:20)                        6.5(18:25)      91.4(21:40)
9/29       4.3(14:50)                        2.1(14:35)      60.1(15:20)
9/30       2.3( 5:35)     142.0(17:30)     321.1( 4:25)      72.0( 4:20)
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TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

PARTICULATE (HH:MN)

SITE	020	021	022	023	024
9/ 1					
9/ 2					
9/ 3					
9/ 4					
9/ 5					
9/ 6					
9/ 7					
9/ 8					
9/ 9					
9/10					
9/11					
9/12					
9/13					
9/14					
9/15					
9/16					
9/17					
9/18					
9/19					
9/20					
9/21					
9/22					
9/23					
9/24					
9/25					
9/26					
9/27					
9/28					
9/29					
9/30					

```
TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR SEPT  1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER;  WIND SPEED-MILES PER HOUR;
        TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)


                                         HYDROGEN SULFIDE    (HH:MM)

SITE          020             021             022             023             024
------------------------------------------------------------------------------------------
9/ 1       2.3( 5:10)                      0.0( 0:00)
9/ 2       1.2(22:50)                      0.0( 0:00)
9/ 3       1.2( 5:30)                      3.5(23:30)
9/ 4       0.0( 0:00)                      4.8( 6:35)
9/ 5       0.0( 0:00)
9/ 6       0.0( 0:00)
9/ 7       0.0( 0:00)
9/ 8       0.0( 0:00)
9/ 9       2.3(23:45)
9/10       2.3( 7:20)
------------------------------------------------------------------------------------------
9/11       2.3(19:15)    172.2( 7:45)
9/12       2.3( 4:35)      0.0( 0:00)
9/13      47.1(15:30)      0.0( 0:00)
9/14      35.8(17:05)      0.0( 0:00)      7.2( 2:50)
9/15      24.8( 2:05)      0.0( 0:00)      7.0(12:25)
9/16      21.3( 3:25)      0.0( 0:00)
9/17      46.8( 2:40)      0.0( 0:00)     11.6( 9:50)
9/18       1.1(15:20)      0.0( 0:00)     14.4( 6:45)     0.0( 0:00)
9/19       2.2(16:35)      0.0( 0:00)      0.0( 0:00)
9/20                       0.0( 0:00)      2.4( 5:30)
------------------------------------------------------------------------------------------
9/21       3.6( 2:05)      0.0( 0:00)      2.4(22:35)
9/22                       0.0( 0:00)      1.2( 5:00)
9/23                       0.0( 0:00)      2.4( 4:35)
9/24       2.4( 5:35)      0.0( 0:00)      1.2( 7:15)
9/25       4.8( 7:20)      0.0( 0:00)   1125.4(17:30)
9/26       8.4( 2:15)      0.0( 0:00)      0.0( 0:00)     5.7( 2:15)
9/27       2.4(20:20)                      2.4(21:20)     7.9(16:00)
9/28       3.7( 7:45)                      2.4( 9:20)    31.1(21:40)
9/29       3.5(10:10)                      0.0( 0:00)    41.1( 2:15)
9/30       2.3(10:20)    317.1(17:30)      0.0( 0:00)    18.3(18:40)
------------------------------------------------------------------------------------------
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TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

TEMPERATURE OUTSIDE (HH:MM)

SITE	020	021	022	023	024
9/ 1	80.0(16:30)	82.0(16:20)	81.0(13:20)		
9/ 2	68.0(15:45)	68.0(16:30)	71.0(16:35)		
9/ 3	75.0(15:40)	76.0(17:10)	78.0(16:55)		
9/ 4	79.0(16:00)	79.0(16:20)	81.0(18:00)		
9/ 5	80.0(14:45)	82.0(17:10)			
9/ 6	78.0(14:35)	79.0(16:15)			
9/ 7	80.0(17:10)	81.0(17:25)			
9/ 8	82.0(17:20)	83.0(16:25)			
9/ 9	94.0(15:00)	85.0(14:55)			
9/10	90.0(11:45)	88.0(15:50)			
9/11		79.0(13:00)			
9/12		56.0(18:00)			
9/13	63.0(16:00)	59.0(17:10)			
9/14	60.0(16:30)	58.0(16:25)	61.0(12:35)		
9/15	60.0(16:25)	61.0(16:20)			
9/16	70.0(17:25)	70.0(16:45)			
9/17	70.0(16:05)	69.0(16:35)			
9/18	72.0(17:10)	69.0(14:25)	78.0(15:15)	78.0(16:05)	
9/19	78.0(16:40)	74.0(16:45)			
9/20		66.0(15:35)	75.0(15:40)		
9/21	59.0(16:05)	70.0(16:55)	76.0(16:45)		
9/22		71.0(14:40)	76.0(13:55)		
9/23		73.0(17:00)	76.0(17:00)		
9/24	72.0(14:55)	71.0(15:55)	76.0(15:35)		
9/25	70.0(12:20)	69.0(12:05)	73.0(11:55)		
9/26	70.0(15:10)	71.0(16:20)	73.0(16:55)	76.0(15:35)	
9/27	52.0(10:15)		54.0(10:20)	57.0(14:15)	
9/28	61.0(17:20)		64.0(17:05)		
9/29	67.0(16:20)		75.0(16:45)	75.0(13:30)	
9/30	73.0(16:30)	69.0(13:50)	76.0(15:40)	78.0(13:55)	

TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

RELATIVE HUMIDITY (HH:MM)

SITE	020	021	022	023	024
9/ 1	46.0(23:55)	56.0(23:55)	47.0(8:05)		
9/ 2	89.0(7:25)	65.0(7:00)	87.0(7:15)		
9/ 3	75.0(5:30)	76.0(6:10)	77.0(6:25)		
9/ 4	50.0(7:15)	53.0(7:20)	49.0(7:05)		
9/ 5	52.0(23:35)	60.0(23:55)			
9/ 6	67.0(7:05)	70.0(6:55)			
9/ 7	52.0(6:55)	58.0(7:25)			
9/ 8	40.0(5:05)	49.0(9:00)			
9/ 9	60.0(7:30)	70.0(8:05)			
9/10	55.0(4:20)	66.0(7:35)			
9/11	98.0(0:30)	92.0(23:50)			
9/12	100.0(2:35)	95.0(23:55)			
9/13	100.0(0:20)	96.0(0:10)			
9/14	98.0(22:50)	92.0(12:55)	100.0(13:25)		
9/15	100.0(7:25)	92.0(0:25)			
9/16	100.0(0:00)	91.0(0:05)			
9/17	100.0(3:00)	92.0(0:05)			
9/18	98.0(6:30)	92.0(4:05)	98.0(7:10)	68.0(7:25)	
9/19	89.0(6:55)	92.0(6:00)			
9/20		89.0(6:25)	89.0(6:35)		
9/21	96.0(6:50)	92.0(7:05)	95.0(6:05)		
9/22		86.0(5:50)	85.0(6:20)		
9/23		79.0(3:50)	81.0(7:15)		
9/24	88.0(7:30)	89.0(5:50)	82.0(7:30)		
9/25	87.0(6:00)	89.0(6:15)	86.0(7:05)		
9/26	80.0(7:05)	75.0(6:40)	80.0(7:25)	48.0(7:05)	
9/27	73.0(23:45)		84.0(23:40)	55.0(23:45)	
9/28	91.0(5:30)		93.0(6:00)		
9/29	64.0(6:30)		60.0(6:55)	36.0(4:45)	
9/30	48.0(7:20)	64.0(7:20)	45.0(7:00)	25.0(6:45)	

TABLE V. MAXIMUM FIVE MINUTE AVERAGES AND TIME OF OCCURRENCE FOR SEPT 1 THRU 30
(UNITS: CONCENTRATIONS-MICROGRAMS PER CUBIC METER; WIND SPEED-MILES PER HOUR;
TEMPERATURE-DEGREES FAHRENHEIT; WIND DIRECTION-DEGREES WITH RESPECT TO THE NORTH)

WIND SPEED - WIND DIRECTION (HH:MM)

SITE DATE	020		021		022		024	
9/ 1	17.0	287.0(11:10)			20.0	275.0(11:50)		
9/ 2	14.0	284.0(11:45)			12.0	281.0(16:45)		
9/ 3	12.0	290.0(17:15)			12.0	265.0(17:15)		
9/ 4	12.0	302.0(15:40)			18.0	264.0(16:25)		
9/ 5	20.0	275.0(14:50)						
9/ 6	15.0	293.0(16:20)						
9/ 7	12.0	315.0(15:40)	77.0	82.0(20:40)				
9/ 8	18.0	298.0(13:40)	18.0	157.0(14:30)				
9/ 9	15.0	297.0(16:15)	15.0	278.0(14:15)				
9/10	19.0	134.0(4:30)	21.0	88.0(4:15)				
9/11	19.0	323.0(16:40)	34.0	307.0(18:15)				
9/12	8.0	331.0(1:25)	19.0	303.0(0:00)				
9/13	13.0	284.0(13:55)	12.0	300.0(17:50)				
9/14	27.0	283.0(12:40)	18.0	218.0(12:45)	25.0	268.0(12:45)		
9/15	24.0	118.0(17:20)	20.0	94.0(17:35)	7.0	261.0(11:15)		
9/16	11.0	123.0(18:45)	13.0	304.0(16:15)				
9/17	15.0	122.0(12:10)	12.0	93.0(12:00)	15.0	97.0(12:05)		
9/18	12.0	313.0(15:55)	10.0	299.0(13:35)	11.0	142.0(1:40)		
9/19	14.0	295.0(11:10)	13.0	304.0(16:05)	13.0	245.0(15:25)		
9/20			15.0	303.0(16:20)	14.0	265.0(16:55)		
9/21	11.0	292.0(12:30)	12.0	316.0(16:20)	11.0	259.0(15:00)		
9/22			8.0	222.0(15:25)	15.0	257.0(15:55)		
9/23			9.0	296.0(13:50)	60.0	95.0(1:50)		
9/24	12.0	286.0(13:05)	14.0	284.0(16:10)	12.0	97.0(2:25)		
9/25	17.0	309.0(14:20)	14.0	123.0(15:45)	14.0	95.0(23:25)		
9/26	14.0	292.0(17:20)	13.0	277.0(17:25)	10.0	102.0(7:10)		
9/27	21.0	318.0(10:50)			70.0	80.0(6:15)		
9/28	14.0	299.0(15:25)			13.0	273.0(15:50)		
9/29	12.0	149.0(8:35)			14.0	98.0(1:15)		
9/30	10.0	295.0(17:30)	10.0	270.0(16:50)	15.0	255.0(16:35)		

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              TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR SEPT  1-30
                       (UNITS OF CONCENTRATIONS-MICROGRAMS PER CUBIC METER)

                                      NITROGEN OXIDES(NOX)
                                            1-HOUR
SITE               020                                      023

      1  9/30(15:55-16:55)  103.3         1  9/29( 8:50- 9:50)  181.2
      2  9/13(12:50-13:50)   45.7         2  9/29(12:50-13:50)  155.8
      3  9/18( 3:30- 4:30)   44.3         3  9/29(14:20-15:20)  126.7
      4  9/26(19:25-20:25)   36.7         4  9/29( 9:55-10:55)  125.8
      5  9/13(14:30-15:30)   34.9         5  9/29( 4:10- 5:10)  121.2
-----------------------------------------------------------------------------------------

                                      NITROGEN OXIDE(NO)
                                            1-HOUR
SITE               020                                      023

      1  9/18( 3:30- 4:30)   42.2         1  9/30(21:40-22:40)   96.1
      2  9/13(12:55-13:55)   35.6         2  9/30(22:45-23:45)   90.9
      3  9/13(14:30-15:30)   33.8         3  9/30(14:10-15:10)   86.5
      4  9/17( 8:10- 9:10)    6.3         4  9/30( 7:15- 8:15)   73.8
      5  9/17(12:20-13:20)    5.0         5  9/30( 2:05- 3:05)   73.4
-----------------------------------------------------------------------------------------

                                      NITROGEN DIOXIDE(NO2)
                                            1-HOUR
SITE               020                                      023

      1  9/30(15:55-16:55)  102.2         1  9/29( 8:50- 9:50)  178.2
      2  9/25(19:25-20:25)   34.6         2  9/29(12:50-13:50)  154.5
      3  9/25(20:35-21:35)   29.8         3  9/29(14:20-15:20)  126.7
      4  9/23(21:25-22:25)   29.5         4  9/29( 9:55-10:55)  125.8
      5  9/22( 0:10- 1:10)   28.8         5  9/29( 4:10- 5:10)  121.2
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                TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR SEPT  1-30
                          (UNITS OF CONCENTRATIONS-MICROGRAMS PER CUBIC METER)

                                              SULFUR DIOXIDE
                                                30-MINUTE
SITE            020                                021                                        022

      1  9/18( 4:35- 5:05)  226.3          1  9/11(14:40-15:10)  271.0          1  9/15( 0:10- 0:40)  737.9
      2  9/14(16:55-17:25)  152.9          2  9/11(16:40-17:10)  256.7          2  9/15(23:10-23:40)  707.8
      3  9/14(17:35-18:05)  148.6          3  9/11( 4:20- 4:50)  250.7          3  9/30( 4:10- 4:40)  285.5
      4  9/14(18:40-19:10)  139.6          4  9/11( 6:40- 7:10)  250.6          4  9/30( 6:10- 6:40)  272.5
      5  9/14(19:35-20:05)  133.9          5  9/11(13:05-13:35)  240.5          5  9/30( 9:15- 9:45)  271.2
-----------------------------------------------------------------------------------------------------------

SITE            023                                024

      1  9/28(21:10-21:40)   26.1
      2  9/28(19:55-20:25)   23.3
      3  9/25(20:40-21:10)   22.3
      4  9/26(10:15-10:45)   20.5
      5  9/29( 1:55- 2:25)   19.5
-----------------------------------------------------------------------------------------------------------

                                              SULFUR DIOXIDE
                                                  3-HOUR
SITE            020                                021                                        022

      1  9/14(16:05-19:05)  146.0          1  9/11(12:30-15:30)  233.1          1  9/30( 2:55- 5:55)  254.6
      2  9/14(19:10-22:10)  125.6          2  9/11( 6:00- 9:00)  194.3          2  9/30( 6:05- 9:05)  251.5
      3  9/17( 5:25- 8:25)  119.1          3  9/11(15:55-18:55)  159.0          3  9/30( 9:15-12:15)  242.4
      4  9/14(22:20- 1:20)  105.7          4  9/10( 3:30- 6:30)  133.4          4  9/14(23:00- 2:00)  141.7
      5  9/15(22:30- 1:30)  104.4          5  9/10( 6:55- 9:55)   87.2          5  9/14( 9:50-12:50)   56.3
-----------------------------------------------------------------------------------------------------------

SITE            023                                024

      1  9/25(20:40-23:40)   16.2
      2  9/28(19:05-22:05)   16.0
      3  9/26( 8:30-11:30)   15.6
      4  9/28(23:15- 2:15)   14.3
      5  9/26( 0:25- 3:25)   13.4
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                     TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR SEPT  1-30
                              (UNITS OF CONCENTRATIONS-MICROGRAMS PER CUBIC METER)

                                                 SULFUR DIOXIDE
                                                    24-HOUR
SITE                  020                                    021                                    022

        1  9/14- 9/15(16:00)  103.6          1  9/10- 9/11(22:00)  136.0          1  9/29- 9/30(24:00)  113.5
        2  9/15- 9/16(17:00)   72.1          2  9/29- 9/30(18:00)    1.0          2  9/14- 9/15( 4:00)   71.0
        3  9/16- 9/17(18:00)   63.9          3  9/16- 9/17( 6:00)    0.6          3  9/17- 9/18( 6:00)   25.5
        4  9/18- 9/19( 4:00)    5.5          4  9/ 1- 9/ 2( 3:00)    0.3          4  9/22- 9/23( 1:00)    [illegible].4
        5  9/12- 9/13(16:00)    4.9          5  9/ 2- 9/ 3( 8:00)    0.3          5  9/23- 9/24( 2:00)    4.2
--------------------------------------------------------------------------------------------------------------------

SITE                  023                                    024

        1  9/25- 9/26( 3:00)   15.3
        2  9/26- 9/27( 4:00)   11.1
        3  9/28- 9/29( 1:00)    9.5
        4  9/29- 9/30( 5:00)    6.7
        5  9/18- 9/19(15:00)    2.7
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             TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR SEPT  1-30
                      (UNITS OF CONCENTRATIONS-MICROGRAMS PER CUBIC METER)

                                      TOTAL HYDROCARBON
                                          3-HOUR(6-9AM)
SITE               020                                023

      1  9/13( 6:00- 9:00)  629.7         1  9/29( 6:00- 9:00) 2405.1
      2  9/24( 6:00- 9:00)  477.3         2  9/30( 6:00- 9:00) 2242.1
      3  9/21( 6:00- 9:00)  445.1
      4  9/18( 6:00- 9:00)  441.9
      5  9/27( 6:00- 9:00)  439.3
--------------------------------------------------------------------------------------

                                          METHANE
                                          3-HOUR(6-9AM)
SITE               020                                023

      1  9/ 7( 6:00- 9:00) 1712.5         1  9/30( 6:00- 9:00) 1943.0
      2  9/ 8( 6:00- 9:00) 1615.1         2  9/29( 6:00- 9:00) 1905.2
      3  9/ 9( 6:00- 9:00) 1539.6         3  9/26( 6:00- 9:00) 1830.1
      4  9/ 5( 6:00- 9:00) 1515.9         4  9/27( 6:00- 9:00) 1732.0
      5  9/ 1( 6:00- 9:00) 1377.0
--------------------------------------------------------------------------------------

                                     NONMETHANE HYDROCARBON
                                          3-HOUR(6-9AM)
SITE               020                                023

                                          1  9/29( 6:00- 9:00)  498.9
                                          2  9/30( 6:00- 9:00)  299.1


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         TABLE VI. THE FIVE MAXIMUM INDEPENDENT SLIDING AVERAGES FOR SEPT  1-30
                   (UNITS OF CONCENTRATIONS-MICROGRAMS PER CUBIC METER)

                                           OZONE
                                           1-HOUR
SITE              020                                  023

      1  9/30( 5:25- 6:25)  139.4        1  9/29( 1:40- 2:40)   97.9
      2  9/24(16:05-17:05)  118.3        2  9/29( 4:05- 5:05)   80.9
      3  9/27(11:55-12:55)  108.0        3  9/29( 6:05- 7:05)   80.3
      4  9/27(15:15-16:15)  104.9        4  9/30( 2:00- 3:00)   80.1
      5  9/27(13:00-14:00)  101.1        5  9/29( 7:15- 8:15)   78.3
--------------------------------------------------------------------------------

                                      CARBON MONOXIDE
                                           1-HOUR
SITE              020                                  023

      1  9/13(14:05-15:05) 2295.5        1  9/25(20:45-21:45) 2357.7
      2  9/17(13:15-14:15) 1876.8        2  9/25(22:40-23:40) 2277.1
      3  9/23(21:30-22:30) 1775.7        3  9/26( 6:45- 7:45) 2244.4
      4  9/13(20:50-21:50) 1764.9        4  9/29( 2:30- 3:30) 2227.3
      5  9/27( 0:10- 1:10) 1752.9        5  9/26( 0:25- 1:25) 2214.2
--------------------------------------------------------------------------------

                                      CARBON MONOXIDE
                                           8-HOUR
SITE              020                                  023

      1  9/13( 6:55-14:55) 1632.0        1  9/28( 0:55- 8:55) 1893.0
      2  9/12(14:55-22:55) 1607.4        2  9/25(17:55- 1:55) 1839.6
      3  9/16(19:55- 3:55) 1585.4        3  9/26(18:55- 2:55) 1814.2
      4  9/13(22:55- 4:55) 1569.5        4  9/26(22:55- 6:55) 1762.9
      5  9/23(18:55- 2:55) 1559.6        5  9/26( 2:55-10:55) 1751.8
--------------------------------------------------------------------------------
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TABLE VII

NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

NITROGEN OXIDES(NOX) ATLANTIC RICHFIELD
TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

CONCENTRATION PPB		WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		TOTAL
GT 200	:																1	:	1
180 - 200	:																0	:	0
160 - 180	:																0	:	0
140 - 160	:																0	:	0
120 - 140	:																0	:	0
100 - 120	:																0	:	0
80 - 100	:																0	:	0
60 - 80	:																0	:	0
40 - 60	:					2								2			0	:	4
20 - 40	:				3	21	9	3					5	14	9		0	:	64
LT 20	:	124	123	114	407	1286	1027	312	57	98	66	83	165	538	483	231	154	:	5268
TOTAL	:	124	123	114	410	1309	1036	315	57	98	66	83	170	554	492	231	155	:	5337
MEAN		4.	3.	3.	4.	6.	5.	4.	3.	4.	3.	2.	3.	4.	4.	3.	5.		4.

```
                          NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

      NITROGEN OXIDES(NOX)                                                       ATLANTIC RICHFIELD
                               TRAILER NO. -  23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                          WIND DIRECTION
                  N   NNE   NE   ENE    E   ESE   SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW  TOTAL
CONCENTRATION
  PPB
  GT  200   :                                                                                       :
180 -  200  :                                       1                                               :     1
160 -  180  :                                       0     1                                         :     1
140 -  160  :                                 2     0     0          1                              :     3
120 -  140  :                            1    2     0     0          0                          1   :     4
100 -  120  :         1          1    1  2    1     0     0     1    0          1          1    0   :     9
 80 -  100  :     6   2    10    5    1  2    1     0     1     1    1          0     2    4    6   :    42
 60 -   80  :     9  20    34   31   12 15   11    13     4    12    9     4    4    11    6    3   :   198
 40 -   60  :     7  11    11   12   16 25   28    19     3    26   13    10   16    11   12   12   :   232
 20 -   40  :     1   0     0    1    0  2    5     1     4     3    0     1    3     1   11    4   :    37
   LT   20  :    21  13     7   10   21 15   31    17    19    43   43    13   21    62   30   35   :   401
    TOTAL   :    44  47    62   60   51 62   81    51    32    86   67    28   45    87   64   61   :   928
              ......................................................................................................

    MEAN         34. 47.   60.  56.  36. 47. 39.   40.   26.   29.  22.   28.  28.   17.  29.  25.     35.
```

```
CORPORATION

                   NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

      NITRIC OXIDE(NO)                                            ATLANTIC RICHFIELD
                          TRAILER NO. -  20  PERIOD( 9/ 1/74 TO  9/30/74)

                                                   WIND DIRECTION
                    N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL
CONCENTRATION
  PPB
  GT  200    :                                                                                   :
180 -  200   :                                                                                   :
160 -  180   :                                                                                   :
140 -  160   :                                                                                   :
120 -  140   :                                                                                   :
100 -  120   :                                                                                   :
 80 -  100   :                                                                                   :
 60 -   80   :                                                                                   :
 40 -   60   :                          1                                                        :     1
 20 -   40   :                     1    2    2    1                        3   10    8           :    27
   LT   20   :    128  124  117  417 1347 1050  334   64  114   75   94  184  572  514  233  155 :  5523
  TOTAL      :    128  124  117  418 1350 1052  335   64  114   75   94  187  582  522  233  155 :  5551
                  ..................................................................................
   MEAN             1.   0.   0.   0.   1.   1.   1.   0.   1.   0.   0.   1.   1.   1.   1.   0.    1.
```

```
                         NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

     NITRIC OXIDE(NO)                                                        ATLANTIC RICHFIELD
                             TRAILER NO. -  23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                          WIND DIRECTION
                 N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL
CONCENTRATION
  PPB
  GT  200   :                                            1                                   1 :    2

180 - 200   :                                            1                                   0 :    1

160 - 180   :                                            0                                   0 :    0

140 - 160   :                                            1                                   0 :    1

120 - 140   :                                            1                                   0 :    1

100 - 120   :                                       1    1                                   0 :    2

 80 - 100   :                                       0    2                                   0 :    2

 60 -  80   :         1              1    5    2    4    1    3         1         1          0 :   19

 40 -  60   :    3   11   23   20   17   26   33   21   13   44   20   11   16   10   11   12 :  291

 20 -  40   :    2    4    2    1    1    3    7    9    8   10    0    2    4    1   10    4 :   66

   LT  20   :   68   50   61   77  100   61   44   33   59  258  131   40   54  127  119   94 : 1376

   TOTAL    :   73   66   86   98  119   95   86   68   88  315  151   54   74  139  140  111 : 1753
             ......................................................................................

   MEAN          3.  11.  14.  10.   8.  18.  23.  24.  22.   9.   6.  12.  12.   4.   6.   9.  11.
```

```
                              NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

             SULFUR DIOXIDE(SO2)                                                      ATLANTIC RICHFIELD
                                 TRAILER NO. -  20  PERIOD( 9/ 1/74 TO  9/30/74)

                                                         WIND DIRECTION
                     N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL
CONCENTRATION
  PPB
  GT  200    :                                                                                 :
180 -  200   :                                                                                 :
160 -  180   :                                                                                 :
140 -  160   :                                                                                 :
120 -  140   :                  1    1    1                                                    :     3
100 -  120   :        1         7    5    5    4    2    1    1         2    2    1    1        :    32
 80 -  100   :   3    1    4    7    8   13    2    0    0    0         1    0    2    0    1   :    42
 60 -   80   :   6   13   11   27   49   52   17    5    1    1    4   15   24   17    8    6   :   256
 40 -   60   :   0    0    0    0   10   19    3    0    0    0    0    0    0    0    0    0   :    32
 20 -   40   :   0    1    1    7   25   30    7    0    0    0    0    0    2    4    3    0   :    80
  LT   20    : 166  158  133  471 1761 1418  460   65  120   80  107  252  923  789  333  291   :  7437
   TOTAL     : 175  174  149  520 1859 1538  493   72  122   82  111  270  951  813  345  298   :  7882
             .....................................................................................................
    MEAN         5.   7.   9.   8.   3.   5.   5.   9.   2.   2.   3.   5.   2.   2.   3.   3.    4.
```

NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

SULFUR DIOXIDE(SO2) ATLANTIC RICHFIELD
TRAILER NO. - 21 PERIOD(9/ 1/74 TO 9/30/74)

CONCENTRATION PPB		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		TOTAL
									WIND DIRECTION										
GT 200	:			1	1	1								1	2			:	6
180 - 200	:	1		0	0	0								0	1			:	2
160 - 180	:	0		2	2	0							1	0	2			:	7
140 - 160	:	0		0	1	0						1	0	2	3			:	7
120 - 140	:	0		1	0	0				1	1	0	0	1	10	1		:	15
100 - 120	:	0		1	2	5	2			0	0	1	0	8	17	1		:	37
80 - 100	:	1		2	5	7	0			0	0	3	3	7	13	4		:	45
60 - 80	:	0	2	3	8	7	2		1	0	0	0	1	8	8	2		:	42
40 - 60	:	0	0	3	12	8	2		0	0	0	0	2	7	3	1		:	36
20 - 40	:	0	0	4	6	3	4	1	0	0	1	0	0	2	1	1	3	:	26
LT 20	:	91	104	253	1195	1288	832	276	127	108	221	255	450	1139	663	291	127	:	7420
TOTAL	:	93	106	270	1232	1319	842	277	128	109	223	260	457	1175	723	301	130	:	7645
MEAN		3.	1.	5.	2.	2.	1.	0.	1.	1.	1.	2.	1.	3.	9.	3.	1.		3.

NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

SULFUR DIOXIDE(SO2) ATLANTIC RICHFIELD

TRAILER NO. - 22 PERIOD(9/ 1/74 TO 9/30/74)

CONCENTRATION PPB		NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
GT 200		1	1	5		2					1	2					12
180 - 200		0	0	0		1					0	0					1
160 - 180		0	1	1	4	0					1	1					8
140 - 160		0	0	4	5	0	1				0	0					12
120 - 140		0	1	28	0	0	0		1		6	5					41
100 - 120		0	3	39	0	0	0		0	1	4	4			1	1	53
80 - 100		0	0	13	0	0	0		0	0	0	2			0	0	15
60 - 80		0	0	5	2	0	1		0	0	0	1	1		0	0	10
40 - 60	1	0	1	2	1	1	1	2	1	0	0	1	0		0	0	11
20 - 40	0	1	1	10	0	0	1	0	0	0	0	2	0	2	0	0	17
LT 20	218	307	545	1726	393	97	43	43	56	124	547	929	232	114	101	136	5621
TOTAL	219	309	553	1833	405	101	47	45	68	125	559	947	233	116	102	137	5799
MEAN	1.	2.	3.	7.	5.	19.	7.	3.	3.	1.	3.	2.	0.	1.	1.	1.	4.

```
                         NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

          SULFUR DIOXIDE(SO2)                                               ATLANTIC RICHFIELD
                               TRAILER NO. -  23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                         WIND DIRECTION
                  N   NNE   NE   ENE    E   ESE   SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW  TOTAL
CONCENTRATION
   PPB
   GT  200   :                                                                                   :
180 -  200   :                                                                                   :
160 -  180   :                                                                                   :
140 -  160   :                                                                                   :
120 -  140   :                                                                                   :
100 -  120   :                                                                                   :
 80 -  100   :                                                                                   :
 60 -   80   :                                                                                   :
 40 -   60   :                                                                                   :
 20 -   40   :    1    1         1                             3          1                    1 :     8
    LT  20   :   72   65   86   97  119   95   86   68   85  315  150   55   79  143  140  110 :  1765
     TOTAL   :   73   66   86   98  119   95   86   68   88  315  151   55   79  143  140  111 :  1773
                 ..............................................................................................

      MEAN        3.   3.   3.   4.   4.   4.   2.   4.   6.   4.   3.   3.   2.   2.   2.   2.     3.
```

NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

HYDROGEN SULFIDE(H2S) ATLANTIC RICHFIELD
TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

CONCENTRATION PPB		WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		TOTAL
GT 100	:																	:	
90 - 100	:																	:	
80 - 90	:																	:	
70 - 80	:																	:	
60 - 70	:																	:	
50 - 60	:																	:	
40 - 50	:														1			:	1
30 - 40	:				2	9	18	2	2						0			:	33
20 - 30	:	2	4	2	17	19	29	9	2	1	1	1	1	3	2	6	1	:	100
10 - 20	:	16	21	31	57	68	99	32	6	4	3	8	21	44	23	10	8	:	451
LT 10	:	157	153	116	444	1766	1400	450	62	117	78	102	248	904	787	329	199	:	7312
TOTAL	:	175	178	149	520	1862	1546	493	72	122	82	111	270	951	813	345	208	:	7897
MEAN		2.	2.	3.	3.	1.	2.	2.	3.	1.	1.	1.	1.	1.	1.	1.	1.		1.

NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

HYDROGEN SULFIDE(H2S) ATLANTIC RICHFIELD

TRAILER NO. - 21 PERIOD(9/ 1/74 TO 9/30/74)

CONCENTRATION PPB		WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		TOTAL
GT 100	:		2	6	17	17	1	2			2	5	10	31	41	8	1	:	143
90 - 100	:	1	0	1	2	3	0	0			1	0	1	5	8	0	1	:	23
80 - 90	:	0	0	0	0	0	0	0			0	1	0	3	5	0	0	:	9
70 - 80	:	0	0	0	1	0	1	0			0	1	1	1	1	0	0	:	6
60 - 70	:	0	0	0	0	0	0	0			0	0	0	3	0	0	0	:	3
50 - 60	:	0	0	0	0	0	0	1		1	1	0	0	1	1	0	0	:	5
40 - 50	:	0	0	0	0	0	0	0		1	1	1	0	1	0	0	0	:	4
30 - 40	:	1	0	0	1	0	0	0		0	0	0	2	0	1	2	0	:	7
20 - 30	:	0	0	0	0	0	1	0		0	0	0	2	1	1	0	1	:	6
10 - 20	:	0	0	0	1	0	0	0		2	1	0	0	2	0	1	0	:	7
LT 10	:	65	76	206	818	921	491	159	85	77	122	130	261	762	354	157	77	:	4757
TOTAL	:	67	78	213	840	941	494	162	85	81	126	138	277	810	408	166	80	:	4970
MEAN		2.	3.	4.	3.	3.	0.	2.	0.	2.	3.	8.	7.	6.	15.	6.	3.		5.

```
                         NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

        HYDROGEN SULFIDE(H2S)                                                    ATLANTIC RICHFIELD
                                  TRAILER NO. -  22  PERIOD( 9/ 1/74 TO  9/30/74)

                                                             WIND DIRECTION
                     N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW   TOTAL
CONCENTRATION
  PPB
  GT  100   :                         1            1                                                          :     2

90 -  100   :                         0            0                                                          :     0

80 -   90   :                         0            0                                                          :     0

70 -   80   :              1          0            0                                                          :     1

60 -   70   :              0          0            0                                                          :     0

50 -   60   :              0          0            0                                                          :     0

40 -   50   :              0          0            0                                                          :     0

30 -   40   :              0          0            0                                                          :     0

20 -   30   :              0          0            0                                                          :     0

10 -   20   :              0     1    4            0                                                          :     5

  LT  10    :      219   308   552  1829   405   100    47    45    68   125   559   947   233   115   102   137 :  5791

   TOTAL    :      219   309   553  1834   405   101    47    45    68   125   559   947   233   115   102   137 :  5799
                   ..............................................................................................

    MEAN             1.    1.    1.    1.    1.   11.    1.    1.    1.    2.    1.    1.    1.    1.    1.    1.     1.
```

```
                         NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

          HYDROGEN SULFIDE(H2S)                                                      ATLANTIC RICHFIELD
                         TRAILER NO. -  23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                      WIND DIRECTION
                   N   NNE   NE   ENE    E   ESE   SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW  TOTAL
CONCENTRATION
  PPB
  GT  100    :                                                                                    :
90 -  100    :                                                                                    :
80 -   90    :                                                                                    :
70 -   80    :                                                                                    :
60 -   70    :                                                                                    :
50 -   60    :                                                                                    :
40 -   50    :                                                                                    :
30 -   40    :        1                                                                           :     1
20 -   30    :    1   0                                                  1                1       :     3
10 -   20    :    0   0     1                                       3    0                0       :     4
  LT   10    :   72  65    85    98  119    94   86    68   88  311  150   55   79  144  140  111 : 1765
   TOTAL     :   73  66    86    98  119    94   86    68   88  314  151   55   79  145  140  111 : 1773
                ..........................................................................................

   MEAN           0.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.    0.
```

```
                    NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

      TOTAL HYDROCARBONS                                                  ATLANTIC RICHFIELD
                        TRAILER NO. -  20  PERIOD( 9/ 1/74 TO  9/30/74)

                                                   WIND DIRECTION
                N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL
CONCENTRATION
  PPB
  GT 2000  :    3    2         1    3         3                               2    2    3    6 :   25

1800 - 2000 :   0    0         0    0         0                               0    0    0    0 :    0

1600 - 1800 :   0    1         0    0         1                               1    0    0    0 :    3

1400 - 1600 :   0    0         0    1         0                               0    0    0    0 :    1

1200 - 1400 :   0    0         0    0         0                               1    0    0    0 :    1

1000 - 1200 :   1    3    3   17   71   34    1    1    1              7   18   14    2    3 :  176

 800 - 1000 :   9    7    5   19  144   78    9    2    1         1    0    7   11    5    7 :  305

 600 -  800 :  39   26   24   80  361  296  110   11   45   28   19   42  130  170  101   46 : 1528

 400 -  600 :   0    0    0    0    1    1    1    0    0    0    0    0    2    0    0    0 :    5

 200 -  400 :   0    0    0    2   10    9    6    0    0    0    0    0    0    0    0    0 :   27

   LT  200  :   0    0    0    1    0    2    2    0    1    0    0    0    2    0    0    0 :    8

  TOTAL     :  52   39   32  120  591  420  133   14   48   28   20   49  163  197  111   62 : 2279
           ....................................................................................

  MEAN     . 1012. 990. 807. 833. 821. 786. 785. 765. 710. 713. 720. 773. 805. 784. 852.1170. 821.
```

```
                         NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

         TOTAL HYDROCARBONS                                                            ATLANTIC RICHFIELD
                                TRAILER NO. -  23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                           WIND DIRECTION
                    N   NNE   NE   ENE    E   ESE   SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW  TOTAL
CONCENTRATION
  PPB
  GT 2000    :     28    37   63    58   38    50   50    36   23   103   27    17   28    32   41    28 :  659

1800 - 2000  :      0     0    0     0    0     0    0     0    0     0    0     0    0     0    0     0 :    0

1600 - 1800  :      1     0    0     0    0     0    0     0    0     0    0     0    0     0    0     1 :    2

1400 - 1600  :      0     0    0     0    0     0    0     0    0     0    0     0    0     0    0     0 :    0

1200 - 1400  :      0     0    0     0    0     0    0     0    0     0    0     0    0     0    0     0 :    0

1000 - 1200  :      0     0    0     0    0     0    0     0    0     0    0     0    0     0    0     0 :    0

 800 - 1000  :      0     0    0     0    0     0    0     0    0     0    0     0    0     0    0     0 :    0

 600 -  800  :      0     0    0     0    0     0    0     0    0     0    0     0    0     0    0     0 :    0

 400 -  600  :      0     0    0     0    0     0    0     0    0     0    0     0    0     0    0     0 :    0

 200 -  400  :      0     0    0     1    0     0    0     0    0     0    0     0    0     0    0     1 :    2

    LT  200  :      0     0    0     0    0     0    0     0    0     0    0     0    0     0    0     0 :    0

   TOTAL     :     29    37   63    59   38    50   50    36   23   103   27    17   28    32   41    30 :  663
                ......................................................................................................

    MEAN        4248.4342.4184.4071.4134.4165.4242.4011.4499.4274.4564.4915.4865.4586.4759.4544.4335.
```

```
                         NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

         METHANE(CH4)                                                        ATLANTIC RICHFIELD
                         TRAILER NO. -  20  PERIOD( 9/ 1/74 TO  9/30/74)

                                                          WIND DIRECTION
                      N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW   TOTAL
CONCENTRATION
  PPB
   GT 2000   :       30    26    16    50   206   206    76     6     9     8    16    42   180   140    64    26 :  1101
1800 - 2000  :        0     2     2     1    10    16     5     1     0     0     1     3    12    11     5     1 :    70
1600 - 1800  :        1     2     2     9    41    43    18     2    15     9     3     6     7     8     4     1 :   171
1400 - 1600  :        0     2     1     6    26    33    10     2     8     4     4     3    12     8     0     2 :   121
1200 - 1400  :        0     1     0     5    15    17     6     1     1     0     1     2     7     6     0     3 :    65
1000 - 1200  :        2     4     0     1    16    16     2     1     1     0     1     4    16     5     7     2 :    78
 800 - 1000  :        0     8     4     1    19    14     3     0     1     0     0     4    13    13     0     3 :    83
 600 -  800  :        2     1     0     4    16    20     7     0     0     1     1     5    11    10     2     0 :    80
 400 -  600  :        2     2     1     4    21    11     2     0     0     1     0     3    13     9     4     0 :    73
 200 -  400  :        1     2     0     3    24    17     8     0     1     0     0     0     8     8     4     1 :    77
    LT  200  :        1     1     0     2     6    11     1     0     1     0     1     1     9     4     0     0 :    38
    TOTAL    :       39    51    26    86   400   404   138    13    37    23    28    73   288   222    90    39 :  1957
                 ...............................................................................................................

     MEAN          3128.2356.2619.2685.2395.2444.2637.2794.2008.2203.2736.2433.2634.2692.2978.2720.2553.
```

```
                                 NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

       METHANE(CH4)                                                                    ATLANTIC RICHFIELD
                                 TRAILER NO. -  23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                            WIND DIRECTION
                     N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW  TOTAL
CONCENTRATION
  PPB
  GT 2000    :      50   47    78   84   97   78   54   51   67  266  102   40   56   84  107   73 : 1334

800 - 2000   :       1    1     0    0    0    0    0    0    0    0    0    0    0    0    1    1 :    4

600 - 1800   :       0    0     0    0    0    0    0    0    0    1    0    0    0    0    0    0 :    1

400 - 1600   :       0    0     0    1    0    0    0    0    0    0    0    0    0    0    0    0 :    1

.200 - 1400  :       0    0     0    0    0    1    0    0    0    0    4    0    0    0    0    0 :    5

.000 - 1200  :       0    0     0    1    0    0    0    0    0    0    0    0    0    0    0    1 :    2

800 - 1000   :       0    0     0    0    1    0    0    0    0    0    0    0    0    0    0    0 :    1

600 -  800   :       0    0     0    1    0    0    0    0    0    0    0    0    0    0    0    0 :    1

400 -  600   :       0    0     0    0    0    0    0    0    0    0    1    0    0    0    0    0 :    1

200 -  400   :       1    0     0    1    0    0    0    0    0    0    0    0    0    1    0    0 :    3

   LT  200   :       0    0     0    0    0    0    0    0    0    0    0    0    0    0    0    0 :    0

   TOTAL     :      52   48    78   88   98   79   54   51   67  267  107   40   56   85  108   75 : 1353
                ...................................................................................................

    MEAN      .  3288,3352,3453,3278,3341,3407,3508,3400,3315,3333.3235,3343.3348.3249,3294,3321.3333.
```

```
                          NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

           CARBON MONOXIDE(CO)                                                    ATLANTIC RICHFIELD
                                 TRAILER NO. -  20  PERIOD( 9/ 1/74 TO  9/30/74)

                                                            WIND DIRECTION
                       N   NNE   NE   ENE    E   ESE    SE   SSE    S   SSW   SW   WSW    W   WNW   NW   NNW   TOTAL
CONCENTRATION
   PPB
    GT 2000    :            2     3     1    5     5     3                                 5     1          1 :    26

1800 - 2000    :            2     1     2   15     7     2                                 0     1     2    0 :    32

1600 - 1800    :      10    9     7     8   97    62    10     1    1               4    14    25     6   11 :   265

1400 - 1600    :      71   71    61   198  617   538   118    26   14    10   21    76   337   267   124   91 :  2640

1200 - 1400    :      41   27    28    82  245   192    88    10   47    30   18    33   118   125    92   47 :  1223

1000 - 1200    :       0    0     2     1    4     6     0     1    0     1    1     0     4     7     2    0 :    29

 800 - 1000    :       0    0     1     1    7     3     0     0    0     0    0     0     2     0     0    0 :    14

 600 -  800    :       0    0     0     1    3     1     0     1    1     0    2     1     0     0     1    0 :    11

 400 -  600    :       1    4     2     7   28    40    19     9   11     5    5    16    31    33     4    3 :   218

 200 -  400    :      12   17    12    30  126   119    55     2    8     9   12    36   155   109    28   11 :   741

     LT  200   :      14    9     6    16   82    77    23     1    2     1    5    19    86    60    33   14 :   448

      TOTAL    :     149  141   123   347 1229  1050   318    51   84    56   64   185   752   628   292  178 :  5647
                 ..................................................................................................

       MEAN          1224.1236.1287.1265.1238.1199.1095.1181.1101.1060. 995. 985.1027.1053.1141.1251.1158.
```

```
                         NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

          CARBON MONOXIDE(CO)                                                       ATLANTIC RICHFIELD
                                   TRAILER NO. -   23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                                  WIND DIRECTION
                          N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW  TOTAL
 CONCENTRATION
   PPB
    GT 2000      :       25    20    42    36    42    38    24    21    21   125    33    16    16    36    45    27 :  567

 800 - 2000      :        4     4     5     4     7     4     3     2    12    19     4     3     4    11     8     4 :   98

 600 - 1800      :        2     1     1     5     7     7     2     3     8    22     7     4     6     5    11     7 :   98

 400 - 1600      :        4     2     4     6    10     4     1     0     3    17     9     2     8     4    14     5 :   93

1200 - 1400      :        3     4     3     4     7     3     4     4     5    22    12     5     3     4     8    12 :  103

1000 - 1200      :        4     6     6     6    10     4     2     5     6    27    16     3     5     4     8     5 :  117

 800 - 1000      :        7     3     5     8     5     7     5     7     8    23    10     4     4     5     8     5 :  115

 600 -  800      :        2     6     4     7     5     3     7     5     3     8     9     1     3     8     3     5 :   79

 400 -  600      :        0     0     5     5     3     4     3     2     2     5     6     1     4     5     3     3 :   51

 200 -  400      :        0     2     3     2     2     5     2     1     1     1     2     1     2     1     0     1 :   26

    LT  200      :        1     0     0     3     0     0     0     1     0     2     0     0     1     1     0     1 :   10

     TOTAL       :       52    48    78    86    98    79    53    51    69   271   108    40    56    85   108    75 : 1357
                     ...........................................................................................................

      MEAN               1914.1700.1842.1667.1779.1797.1742.1644.1680.1847.1552.1718.1544.1730.1807.1659.1744.
```

NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

OZONE(O3) ATLANTIC RICHFIELD

TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

CONCENTRATION PPB	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
GT 100 :				2									1	1			: 4
90 - 100 :	1			0									0	0			: 1
80 - 90 :	0			0									0	0	1		: 1
70 - 80 :	0			0									0	0	0		: 0
60 - 70 :	7	12	2	13	1	3		3	9	16	37	29	31	38	25	14	: 240
50 - 60 :	31	24	17	21	55	43	16	14	69	38	25	69	180	151	93	47	: 893
40 - 50 :	41	25	23	63	99	102	50	21	9	9	10	43	182	161	64	54	: 956
30 - 40 :	18	15	21	146	407	277	123	7	5	2	5	23	100	60	20	12	: 1241
20 - 30 :	14	32	20	89	442	362	75	12	11	6	18	30	75	76	26	25	: 1313
10 - 20 :	42	24	34	64	227	200	51	10	14	8	12	50	210	134	41	21	: 1142
LT 10 :	21	46	32	122	630	557	178	5	5	3	4	26	172	192	75	35	: 2103
TOTAL :	175	178	149	520	1861	1544	493	72	122	82	111	270	951	813	345	208	: 7894
MEAN	33.	28.	26.	26.	19.	19.	20.	36.	44.	46.	44.	36.	30.	30.	34.	35.	25.

NUMBER OF SAMPLES BY WIND DIRECTION AND LEVEL

OZONE(O3)

ATLANTIC RICHFIELD

TRAILER NO. - 23 PERIOD(9/ 1/74 TO 9/30/74)

CONCENTRATION PPB	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
GT 100 :																	
90 - 100 :																	
80 - 90 :					1												1
70 - 80 :		1		1	0												2
60 - 70 :		0		0	0						1						1
50 - 60 :		0		0	1				1		1			1			4
40 - 50 :	25	27	60	53	34	50	48	36	16	82	26	8	16	18	24	22	545
30 - 40 :	13	17	14	29	58	27	7	11	38	138	61	20	22	44	62	34	595
20 - 30 :	13	5	4	3	4	1	0	4	14	52	17	12	18	22	22	18	209
10 - 20 :	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
LT 10 :	21	16	8	11	21	17	31	17	19	43	45	15	23	61	32	35	415
TOTAL :	73	66	86	98	119	95	86	68	88	315	151	55	79	146	140	110	1775
MEAN	27.	30.	38.	36.	31.	33.	28.	31.	27.	30.	25.	25.	25.	26.	27.	23.	28.

NUMBER OF SAMPLES BY WIND DIRECTION AND WIND SPEED

ATLANTIC RICHFIELD COMPANY METEOROLOGICAL TOWER SITE
LEVEL = 6 FEET PERIOD(9/ 1/74 TO 9/30/74)

WIND SPEED KNOTS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		TOTAL
		WIND DIRECTION																	
GT 21	:	1																:	1
16 - 21	:	2															5	:	7
10 - 16	:	3	2								2	20	2		3	22	43	:	97
6 - 10	:	11	13	2							24	100	12	10	20	40	54	:	286
3 - 6	:	7	12	14	22	28	44	29	36	18	28	98	51	15	27	43	37	:	509
LT 3	:	38	58	63	81	90	99	85	67	62	46	137	114	39	40	58	76	:	1153
TOTAL	:	62	85	79	103	118	143	114	103	80	100	355	179	64	90	163	215	:	2053
MEAN		4.	2.	1.	1.	1.	2.	1.	2.	1.	3.	4.	2.	2.	3.	5.	5.		3.

TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE - 288

```
                    NUMBER OF SAMPLES BY WIND DIRECTION AND WIND SPEED

                 ATLANTIC RICHFIELD COMPANY METEOROLOGICAL TOWER STIE
                   LEVEL =  30 FEET  PERIOD( 9/ 1/74 TO  9/30/74)

                                                     WIND DIRECTION
               N  NNE   NE  ENE   E  ESE   SE  SSE   S  SSW   SW  WSW   W  WNW   NW  NNW  TOTAL
WIND SPEED
  KNOTS
  GT   21   :                                                                          :
16 -   21   :                                                                          :
10 -   16   :                                                                          :
 6 -   10   :                                                                          :
 3 -    6   :                                                                          :
  LT    3   :                                                                          :

  TOTAL     :  0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :    0
             ....................................................................................

   MEAN        0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.

                  TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -          0
```

NUMBER OF SAMPLES BY WIND DIRECTION AND WIND SPEED

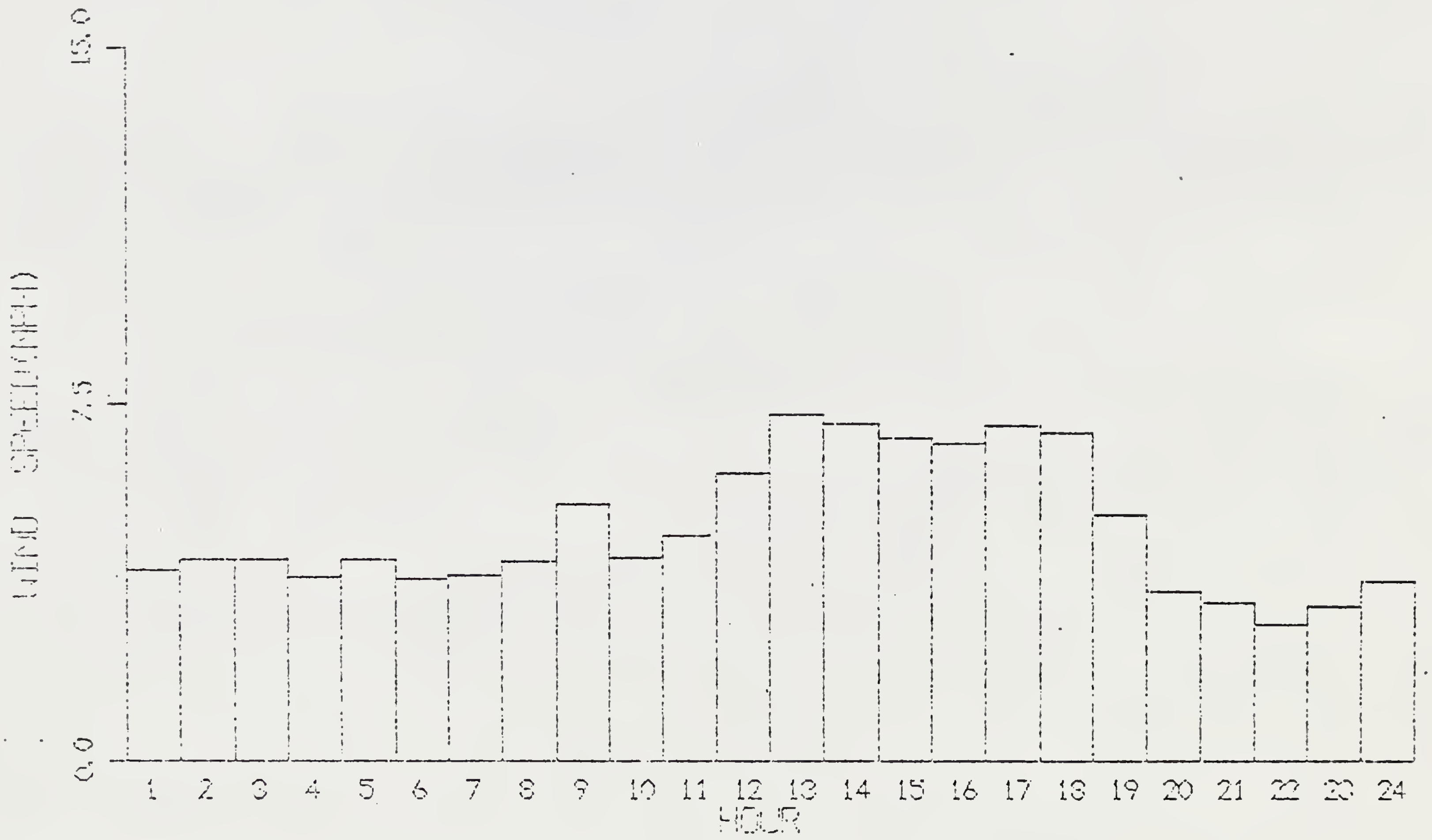
ATLANTIC RICHFIELD COMPANY METEOROLOGICAL TOWER SITE
LEVEL = 100 FEET PERIOD(9/ 1/74 TO 9/30/74)

WIND SPEED KNOTS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		TOTAL
		WIND DIRECTION																	
GT 21	:														4	1	4	:	9.
16 - 21	:									1	8			3	10	16	9	:	47
10 - 16	:	4	1						2	48	10	5	10	19	19	29	24	:	171
6 - 10	:	7	6	1	10	34	22	6	18	120	29	11	11	26	53	33	19	:	406
3 - 6	:	16	11	9	36	62	16	6	16	38	24	13	10	8	12	11	14	:	302
LT 3	:	8	5	9	6	8	5	8	9	9	8	10	11	9	8	5	4	:	122
TOTAL	:	35	23	19	52	104	43	20	45	216	79	39	42	65	106	95	74	:	1057
MEAN		5.	4.	3.	4.	5.	5.	4.	5.	7.	7.	5.	6.	8.	9.	10.	10.		7.

TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE - 19

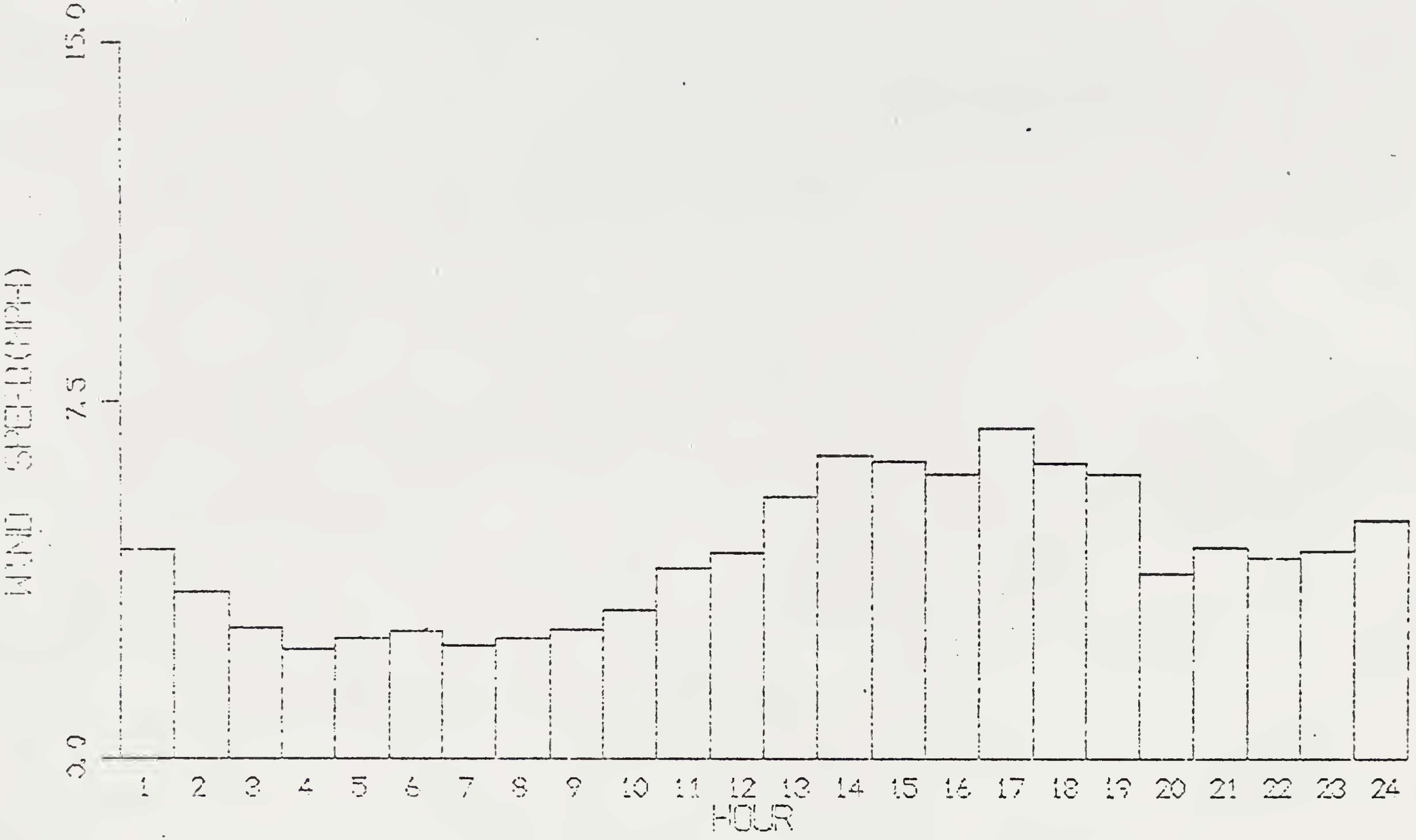
```
                         NUMBER OF SAMPLES BY WIND DIRECTION AND WIND SPEED

                        ATLANTIC RICHFIELD COMPANY METEOROLOGICAL TOWER SITE
                           LEVEL = 200 FEET  PERIOD( 9/ 1/74 TO  9/30/74)

                                                     WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW   TOTAL
WIND SPEED
  KNOTS
 GT   21   :                                               5    1                        7    4    4 :   21

16 -  21   :           1    1                             27    2         5    5   22   23    2 :   88

10 -  15   :   3    1    0                   1   26  155   16    8   18   33   28   45   18 :  353

 6 -  10   :  13   11    3   19   69   29   14   53   89    8   12   27   42   57   35   33 :  514

 3 -   6   :  19   19   29   63   60   61   28   34   46   15   21   18   25   29   13   14 :  514

 LT    3   :  17   30   36   22   22   24   34   23   20   10    7    5   13   11   13    7 :  294

  TOTAL    :  52   62   69  104  171  114   77  136  343   52   48   73  118  154  133   78 : 1784
            ..........................................................................................

   MEAN        4.   3.   3.   4.   5.   4.   3.   6.  10.   7.   6.   8.   7.   9.  10.   8.      7.

                         TOTAL NUMBER OF CALMS DISTRIBUTED ABOVE -        27
```

FIGURE IV-1



DIURNAL VARIATION OF WIND SPEED(MPH)
SITE - 20

```
                              DIURNAL VARIATION OF WIND SPEED(MPH)
                           TRAILER NO. - 20  PERIOD( 9/ 1/74 TO  9/30/74)

                                                HOUR
        1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24   MEAN
  Y

  1     4    5    4    4    5    5    6    6    5    6   12   14   11    9    8   10    9    9   11    8    4    2    2    8     7.
  2     7    7    4    2    1    4    4    6    7    6    7   11    9    7    7    6    6    5    6    5    2    1    0    2     5.
  3     3    4    4    3    4    4    5    7    7    2    4    4    6    4    5    6    6    8    6    3    4    2    4    4     5.
  4     4    4    4    5    5    5    4    6    8    4    8    8    8    6    7    8    6    5    1    2    3    3    4    4     5.
  5     4    3    5    1    3    5    3    2    6    4    5    7    5    9   14   15   14   11   10    5    3    3    3    4     7.
  6     5    4    5    5    4    3    5    5    6    3    4    4    7    7    9   12   12    8    6    3    3    3    4    3     5.
  7     4    5    3    3    4    5    5    7    8    4    3    8         6    5    6    6    3    4    3    3    2    5    4     5.
  8     4    4    4    6    7    2    8    8    5    4    2    3    4    9    7    7    7    7    6    1    3    4    5    4     5.
  9     3    6    5    6    4    4    4    3    6    5    3    5         4    5    4    6    8    1    1    3    2    5    5     5.
  0     6    3    4    3    8    4    4    2    6    6    8    9   11   12   11   12   10    6    8    2    1    3    2    3     6.
  1     3    3    4    2    4    3    0    3    3    1    6    5    6    8   5.    4   10   12   11    6    7    5    3    2     5.
  2     2    5    4    6    5    3    2    4    6    6    5    3    3    0                             2    1    1    0    2     4.
  3     2    3    3    2    3    2    1    3    2    1    3         8    9    9    7    8    9    5    3    4    1    1    1     4.
  4     2    2    0    1    2    0    2    2    5    2    4    4    8    5    2    1    2    5    2    2    1    1    0    0     3.
  5     0    4    1    1    1    0    0    0    0    0    1    5    4    2    2    1    3    8    3    2    4    1    0    0     2.
  6     0    0    0    1    2    3    3    3    1    0    2    1    2    4    6    6    6    3    5    8    4    2    5          3.
  7     5    3    4    5    4    2    3    3    3    1    2        10    7    6    4    4    3    1    3    2    2    3    4     4.
  8     3    5    5    3    3    2    2    3    5    3    2    4    7    5    6    5    4    5    3    2    3    2    3    3     4.
  9     3    4    4    3    4    3    3    2    2    2    5    8    8    8    5    8    5    4    3    2    4    0    2    3     4.
  0     4    3                                                                                                               4.
  1     2    2    3    2    3    4    3    2    4    2    1    2    9    7    7    4    5    7    4    3    3    3    3    3     4.
  2     4    3    3    4    3    5    3    4    5    3    5    0                                                                 4.
  3                                                                    4    2    5    3    3    1    2    3    3    3     3.
  4     3    3    5    5    5    3    3    0    0    1    4    5   10    8    8    5    5    4    5    3    3    0    4    5     5.
  5     4    4    5    5    5    4    3    4    8    7    2    2    4    3    4    5    5    6    2    2    3    5    3    5     5.
  6     5    3    5    3    2    2    1    5    9    7    2    3    5    5    6    5   10   10    2    2    3    5    5    5     5.
  7     4    5    4    4    5    5    6    4    1    5   12   13   12   12   10    8    8    9    9    4    1    1    2    3     7.
  8     2    4    4    3    4    5    7    4    6    6    2    4    4    3    5    8    6    7    5    2    4    4    3    3     5.
  9     4    4    4    4    3    3    3    4   10    8    4    2    4    7    3    3    5    5    4    2    3    4    3    4     5.
  0     4    4    6    5    3    3    3    3    7    7    3    3    5    4    6    3    2    5    1    1    2    2    2    2     4.

EAN    4.   4.   4.   4.   4.   4.   4.   4.   5.   4.   5.   6.   7.   7.   7.   7.   7.   7.   5.   4.   3.   3.   3.   4.

                    TOTAL NUMBER OF OBSERVATIONS =   7895    MEAN VALUE =     5.
```



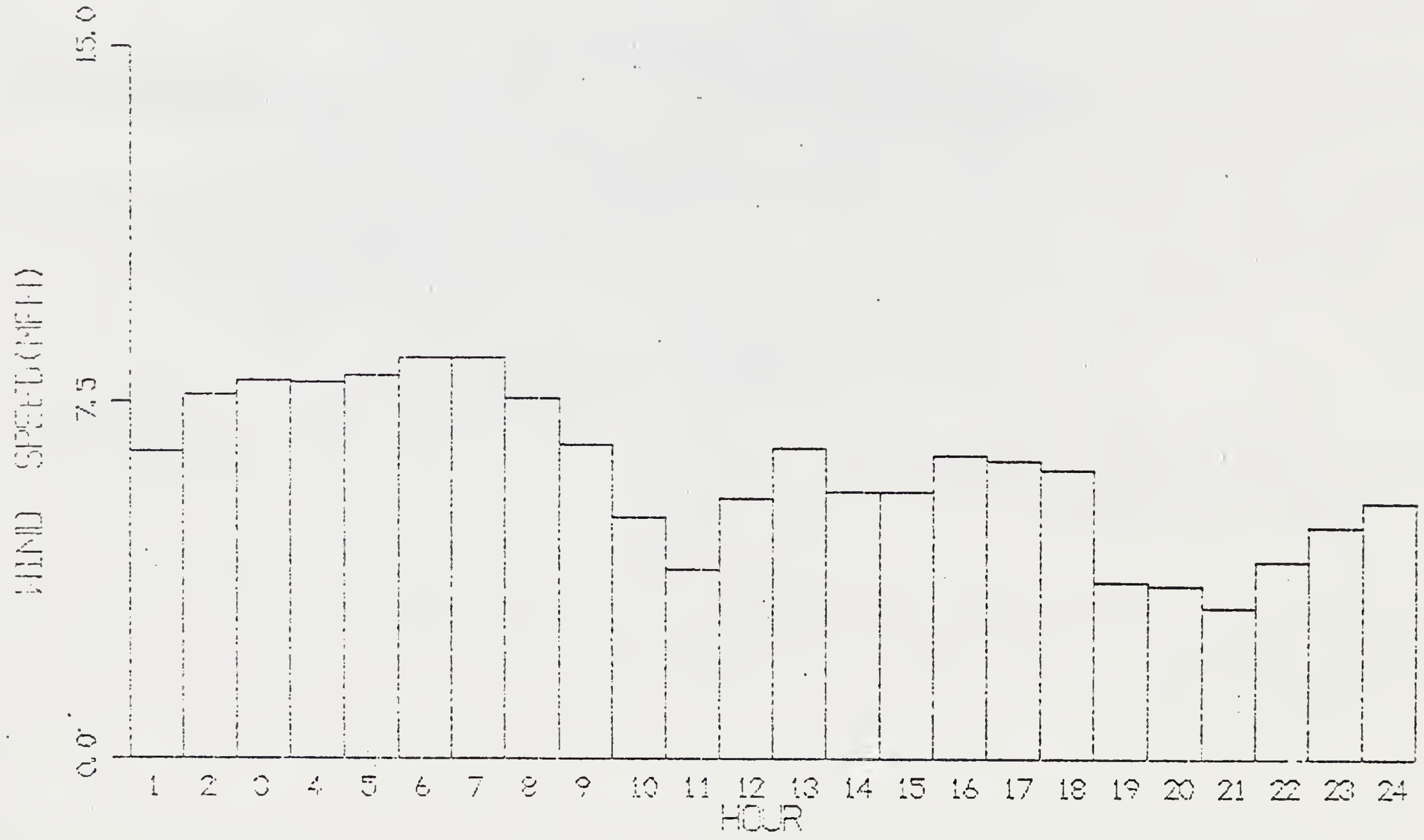
DIURNAL VARIATION OF WIND SPEED(MPH)
SITE - 21

DIURNAL VARIATION [illegible] WIND SPEED(MPH)
TRAILER NO. - 21 PERI[illegible](9/ 1/74 TO 9/30/74)

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
															14										15.
														8	6	10	13	10	8	6	2	5	5	3	7.
	4	5	3	2	2	4	3	3	3	4	2	3	4	9		7	8	6	6	1	16	5	6	5	5.
	5	4	3	2	3	2	2	2	3	3	1	5	6	4	8	5	8	8	6	5	5	4	4	3	5.
	4	4	2	2	3	3	1	1	3	2	2	5	5	9	7	5	5	5	2	1	2	6	8	7	4.
	8	4	4	5	12	6	2	2	5	7	8			8	8		8	6	7	6	5	4	4	5	5.
	5	7	6	3	1	0	2	4	4	3	7	7	9	8	9	9	18	0	28					19	6.
	13	5	2	1	4	9	6	10	8	4	5	5	3	4	3	2	1	3	5	2	1	2	2	3	5.
	4	4	3	2	0	1	2	3	2	1	2	7	6	7			7	8	9	6	1	1	2	2	4.
	1	2	1	3	3	1	3	1	4	5	8	6		7	1	1	2	1	5	5	1	3	1	3	3.
	4	2	1	1	0	0	0	0	0	0	0	1		2	1	1	1	7	8	7	0	1	1	1	2.
	1	0	1	3	2	4	2	0	1	2	2	2	1	2	4	7	6	7	5	5	5	3	5	4	4.
	2	3	2	1	0	1	2	1	0	0	1	5	9	7	3	4	2	3	2	3	4	4	5	6	3.
	3	1	1	1	1	0	1	2	1	2	1	3	3	5	5	4	4	4	3	0	3	4	4	3	3.
	3	3	3	3	0	1	1	3	2	2	7	4	7	7	7	6	8	7	4	0	4	3	4	5	4.
	4	4	4	2	2	3	4	3	1	2	5	6	8	9	8	10	11	11	13	9	6	2	2	4	6.
	3	5	3	2	3	2	2	1	1	2	1	2	8	8	6	7	7	7	4	0	4	5	4	2	4.
	2	1	2	2	1	1	0	1	1	3	5	5	3	3	3	4	3	2	1	1	4	5	4	4	3.
	4	4	2	0	1	2	1	0	1	1	2	1	2	4	5	3	1	1	0	2	4	4	4	3	3.
	3	2	1	0	1	1	0	0	0	0	4	3	7	9	10	10	10	4	3	1	3	2	4	3	4.
	1	0	1	1	1	0	0	1	1	3	4	2	4	3	5	8	5	5	6	4	4	7	7	8	4.
	8	1	1	3	1	5	3	5	7	6	3	2	3	4	4	5	8	8	4	2	5	5	4		5.
																2	6	7	4	3	3	3	3	3	4.
	2	1	2	0	1	0	0	0	0	3	4	3	3	3	2	4	6	5	2	3	6	4	4	4	3.
AN	4.	3.	3.	2.	3.	3.	2.	3.	3.	3.	4.	4.	5.	6.	6.	6.	7.	6.	6.	4.	4.	4.	4.	5.	

TOTAL NUMBER OF OBSERVATIONS = 6076 MEAN VALUE = 4.

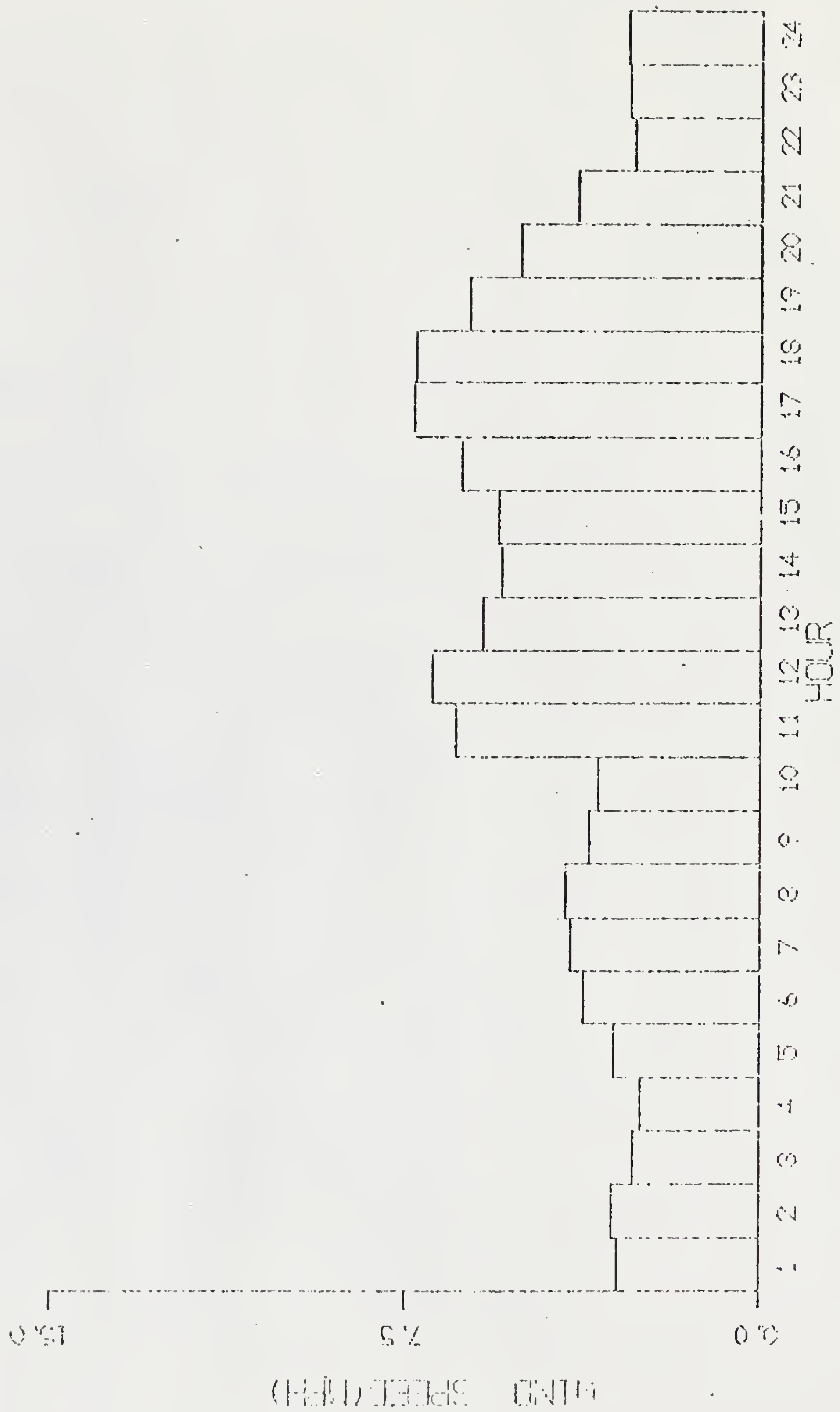


DIURNAL VARIATION OF WIND SPEED(MPH)
SITE - 22

DIURNAL VARIATION OF WIND SPEED(MPH)
TRAILER NO. - 22 PERIOD(9/ 1/74 TO 9/30/74)

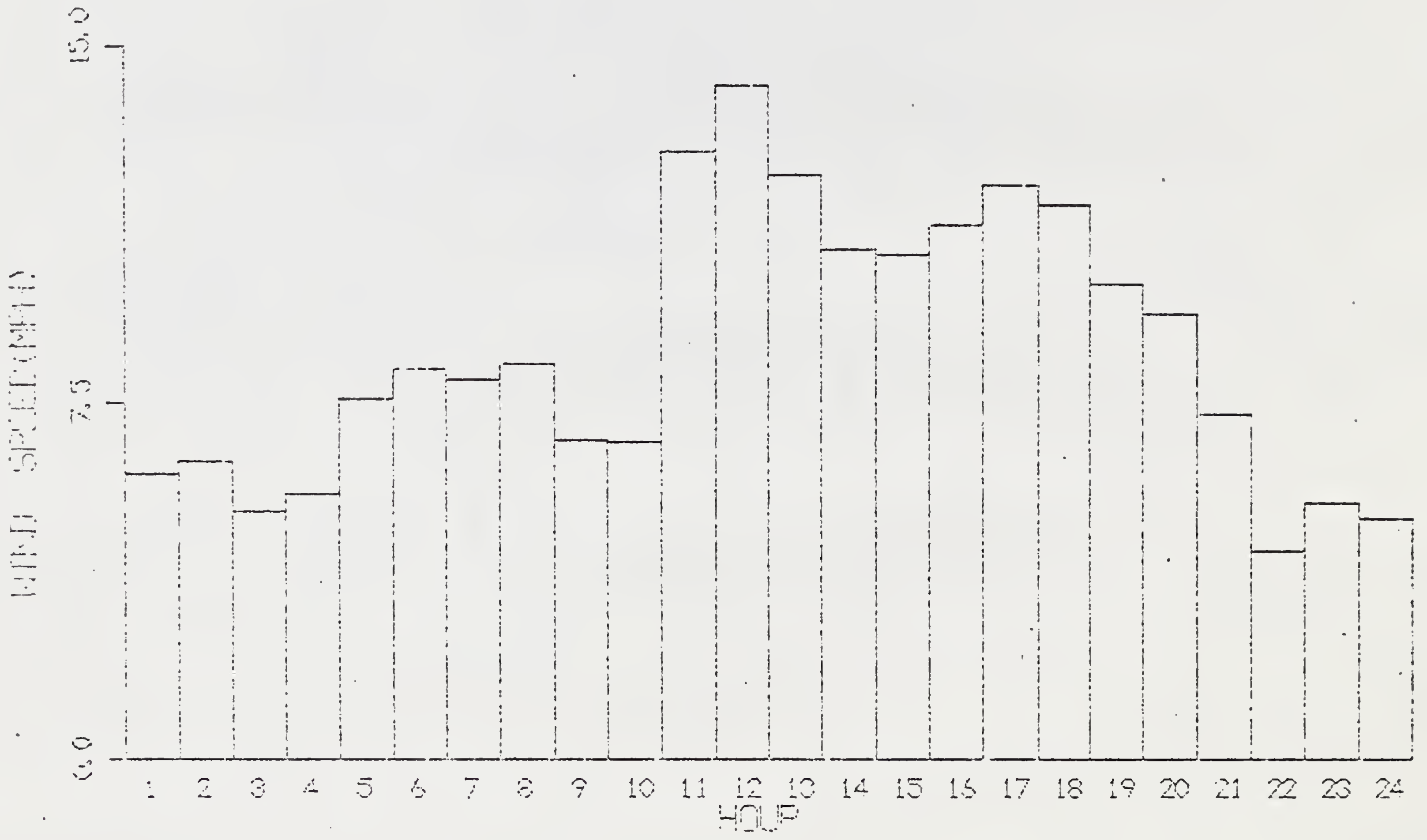
												HOUR													
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	9	8	12	12	12	13	13	14	10	7	13	15	15	11	8	11	9	9	9	9	4	5	4	8	12.
2	9	5	4	3	2	4	2	1	6	5	7	8	6	6	7	7	7	6	7	4	2	2	0	1	5.
3	4	6	7	7	9	8	8	9	7	3	1	4	5	6	7	6	5	9	6	3	3	5	4	7	6.
4	9	9	9	11	13	12	11	11	9	6	3	6	6	6	9	7	10	5	2	2	3	5	6	7	8.
5	9	10	11	11																					11.
6																									
7																									
8																									
9																									
10																									
11														4	5	5	7	8	7	10	8	6	3		7.
12																						1	0	0	1.
13													7	5	5	5	5	6	3	2	1	1	2	0	4.
14	2	1	0	1	2	2	3	2	6	6	2	3	8	4	3	1	0	2	0	2	1	0	0	0	3.
15	0	4	4	2	3	4	3	2	0	0	3	5	4	2	3	4								0	3.
16												0	3												4.
17											3		11	8	7	4	5	4	2	2	1	3	8	4	5.
18	3	9	10	8	7	9	7	6	7	6	2	4	5	4	3	2	2	4	0	1	3	1	6	3	5.
19	0	0	0	0	0	0	0	0	0	0	0	5	8	8	4	7	5	5	2	2	2	0	0	1	2.
20	6	8	8	9	9	3	5	8	5	2	6	6	6	5	4	5	8	9	6	2	1	2	1	1	6.
21	2	2	5	3	4	7	6	6	6	3	0	2	5	5	6	7	4	5	3	2	4	5	3	3	5.
22	2	7	8	8	8	8	8	8	8	5	2	3	5	4	3	6	6	2	0	2	4	7	7	5	6.
23	8	12	9	12	12	12	12	11	8	6	2	3	3	4	5	7	3	6	1	4	3	4	8	7	7.
24	7	8	10	9	9	9	9	7	3	2	6	7	9	7	4	5	4	4	4	3	3	4	1	4	6.
25	2	5	3	5	5	8	9	8	10	7	1	2	3	2	3	5	4	3	1	3	2	7	11	12	5.
26	12	13	13	14	12	14	13	14	11	8	2	3	6	4	5	5	8	9	3	3	3	7	10	11	9.
27	12	11	12	12	10	9	13	4	0	4	12	11	9	8	7	11	7	6	5	4	1	2	1	2	6.
28	2	3	5	4	5	7	8	7	6	6	2	3	5	3	4	9	9	4	2	4	3	1	3	5	5.
29	9	12	12	11	11	11	9	8	7	7	4	2	3	2	5	3	5	5	1	3	3	7	10	8	7.
30	10	10	11	9	11	11	11	10	7	7	2	3	4			6	10	6	2	2	3	8	9	9	8.
MEAN	6.	8.	8.	8.	8.	8.	8.	8.	7.	5.	4.	5.	7.	6.	6.	6.	6.	6.	4.	4.	3.	4.	5.	5.	

TOTAL NUMBER OF OBSERVATIONS = 5797 MEAN VALUE = 6.



DIURNAL VARIATION OF WIND SPEED AT 6 FEET(MPH)
SITE - 23

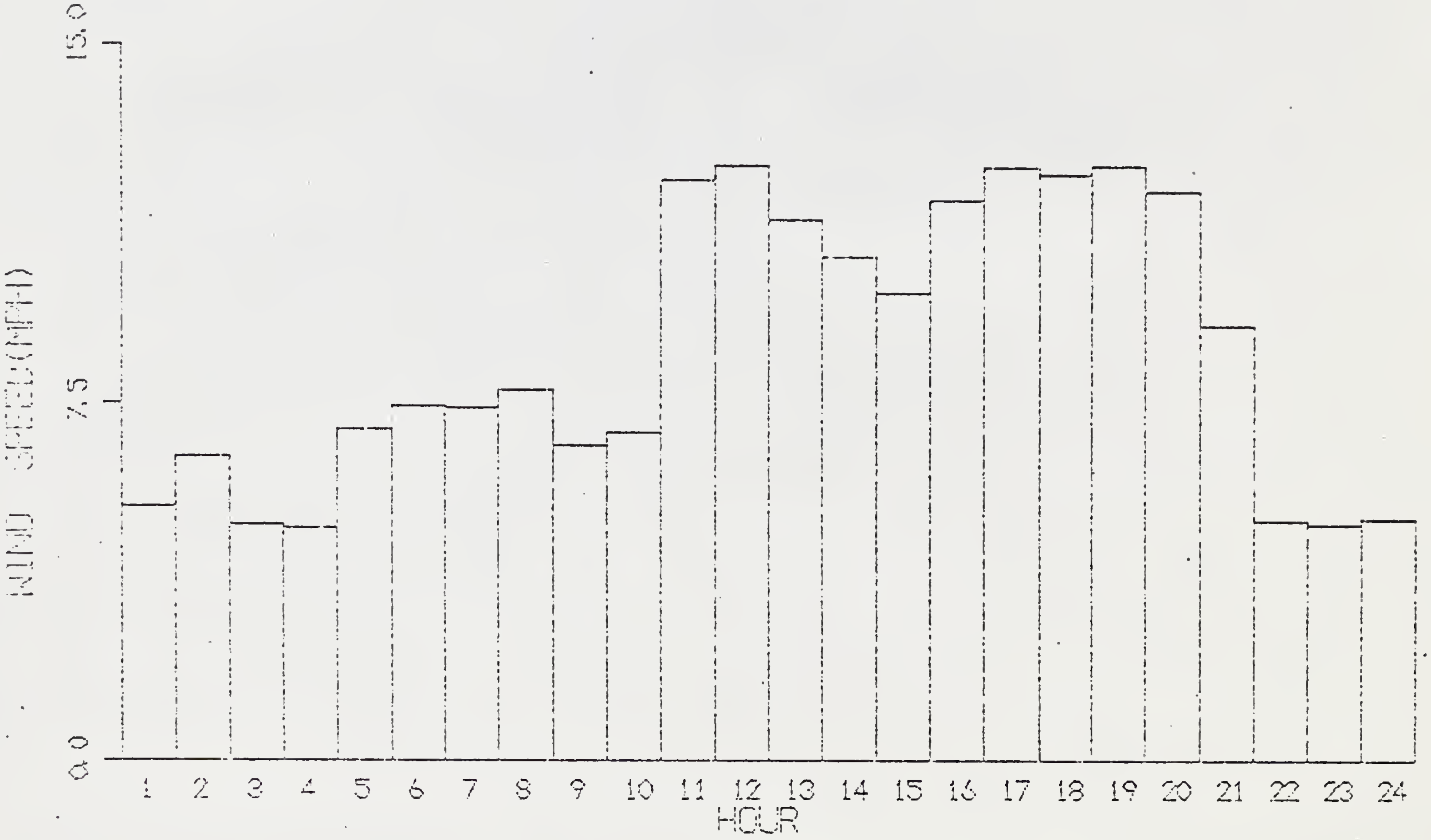
```
                         DIURNAL VARIATION OF  ND SPEED AT 6 FEET(MPH)
                         TRAILER NO. - 23  PER  D( 9/ 1/74 TO  9/30/74)

                                              HOUR
       1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
AY

1
2
3
4
5
6
7
8
9
0
1
2
3
4
5
6
7                                                                          4   3   4   1   2   3     4.
8      2   3   4   2   2   1   1   0   1   2               5   5   5   5   5   4   3   2   2         3.
9                                      2   1   5   7   5   8       6   8   8                         6.
0
1
2
3
4
5                                                                 10   9   8   4   4   3   3   3   2     6.
6      4   4   3   3   4   3   3   3   3   6   5   7   5   1   5   5   8   6   6   7   6   2   3   2     5.
7      3   3   1   3   5   9   9  11   9   6  16  16  15  15  11  10  11  12  11   8   2   2   3   3     9.
8      2   1   2   2   2                                          13   0   8   9   7   8   4   2   2   1     5.
9      2       2   1   2   2   2   3   3   2   2   2   1   0   0   2   2       4   2   3   2   2   3     2.
0      2   2   2   2   1   1   2   1   1   0   1   1   1   2   0   2   2   0   4   2   3   3   2   2     2.

EAN   3.  3.  3.  3.  3.  4.  4.  4.  4.  3.  6.  7.  6.  5.  6.  6.  7.  7.  6.  5.  4.  3.  3.  3.

                    TOTAL NUMBER OF OBSERVATIONS =  1755   MEAN VALUE =     4.

    T GOULD.VT
```



DIURNAL VARIATION OF WIND SPEED AT 30 FEET(MPH)
SITE - 23

```
                          DIURNAL VARIATION OF WIND SPEED AT 30 FEET(MPH)
                           TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                    HOUR
       1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24   MEAN
DAY

  1
  2
  3
  4
  5
  6
  7
  8
  9
 10
 11
 12
 13
 14
 15
 16
 17                                                                                     8    7    8    3    4    6     6.
 18    5    7    6    4    5    3    4    2    3    3                   7    7    7    7    7    7    6    3    4                6.
 19                                           4    3    7    9    7   10         6   11   11                                  8.
 20
 21
 22
 23
 24
 25                                                                       15   13   11    7    6    8    4    5    5     9.
 26    6    5    5    6    6    6    5    6    5    9    9   11    8    5    9    9   12   11   10   11   10    5    6    3     8.
 27    6    5    3    6   10   14   14   15   13    9   21   21   20   19   15   13   15   16   15   13    6    4               13.
 28
 29
 30

MEAN   6.   6.   5.   6.   8.   8.   8.   8.   7.   7.  13.  14.  12.  11.  11.  11.  12.  12.  10.   9.   7.   4.   5.   5.

                      TOTAL NUMBER OF OBSERVATIONS =  1044   MEAN VALUE =     9.
```

GPLT GOULD.VT

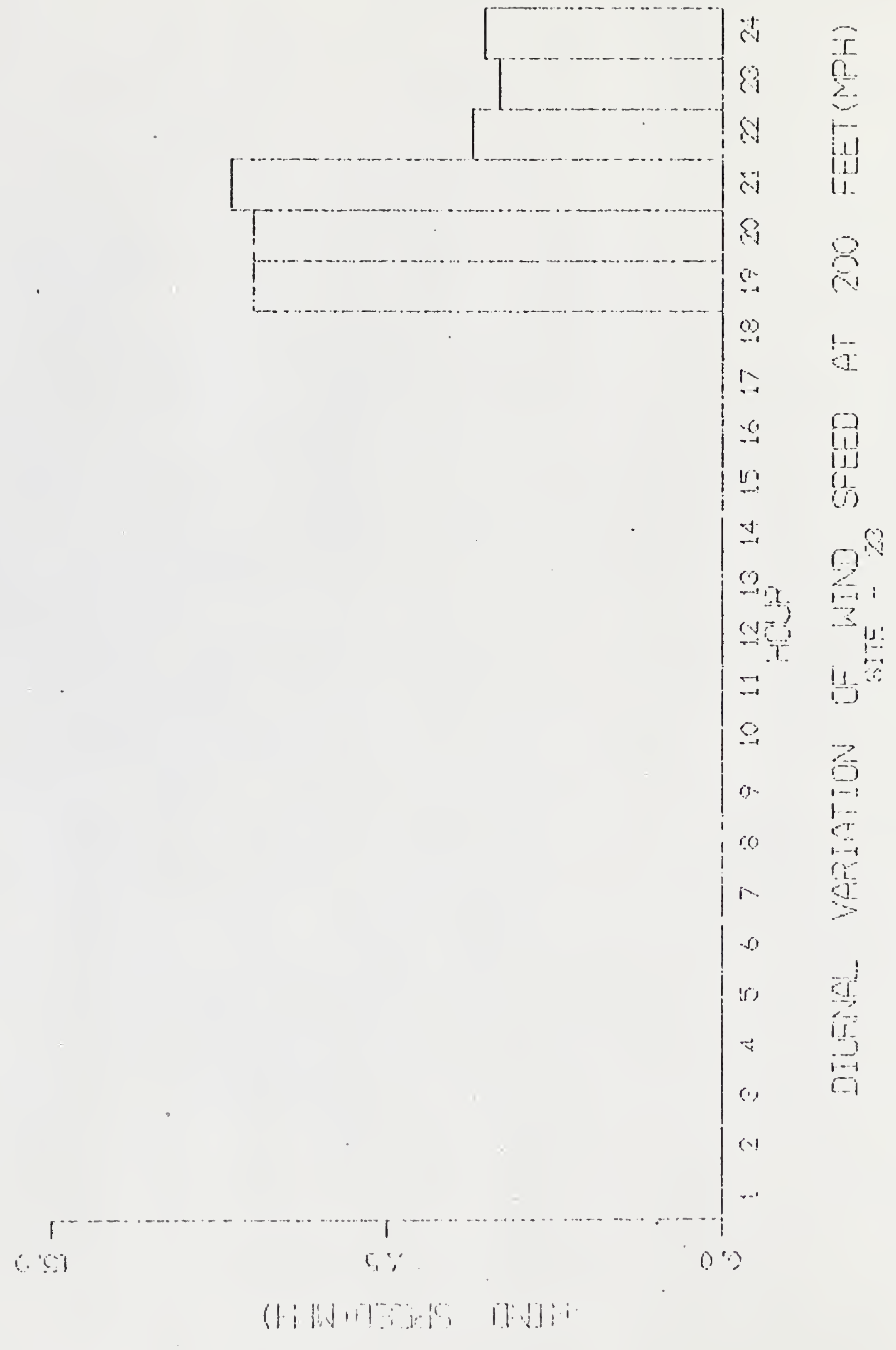


DIURNAL VARIATION OF WIND SPEED AT 100 FEET(MPH)
SITE - 23

CORPORATION

```
                       DIURNAL VARIATION OF W  D SPEED AT 100 FEET(MPH)
                        TRAILER NO. - 23  PER  OD( 9/ 1/74 TO  9/30/74)

                                              HOUR
        1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
AY

1
2
3
4
5
6
7
8
9
0
1
2
3
4
5
6
7                                                                                                10   10   12    4    4    6    8.
8       5    8    8    5    4    2    3    3    3    3                   7    8    8    7    8    8    9    4    3              6.
9                                                 3    3    7   10    6   11         6   11   12                                9.
0
1
2
3
4
5                                                                                 18   14   12    8   12   13    4    4    3   10.
6       5    7    4    6    7    7    6    8    6   10   10   11    9    5   10   10   14   12   12   15   15   10    8    4    9.
7       6    7    5   10   16   20   18   19   15   10   23   24   22   21   16   14   17   18   19   16    8    4    5    5   15.
8       4    2    3    2    3                                                9    0   12   15   16   16   10    4    4    3    8.
9       3         2    2    2    2    3    5    5    7    6    8    7    6    6    9    8        11    8    4    3    3    5    6.
0       6    5    5    2    7    3    4    2    5    5         7    8   11    7   11   10    7   12    6    4    5    5    4    7.

EAN    5.   6.   5.   5.   7.   7.   7.   8.   7.   7.  12.  12.  11.  11.  10.  12.  12.  12.  12.  12.   9.   5.   5.   5.

                      TOTAL NUMBER OF OBSERVATIONS =  1749   MEAN VALUE =     9.
```

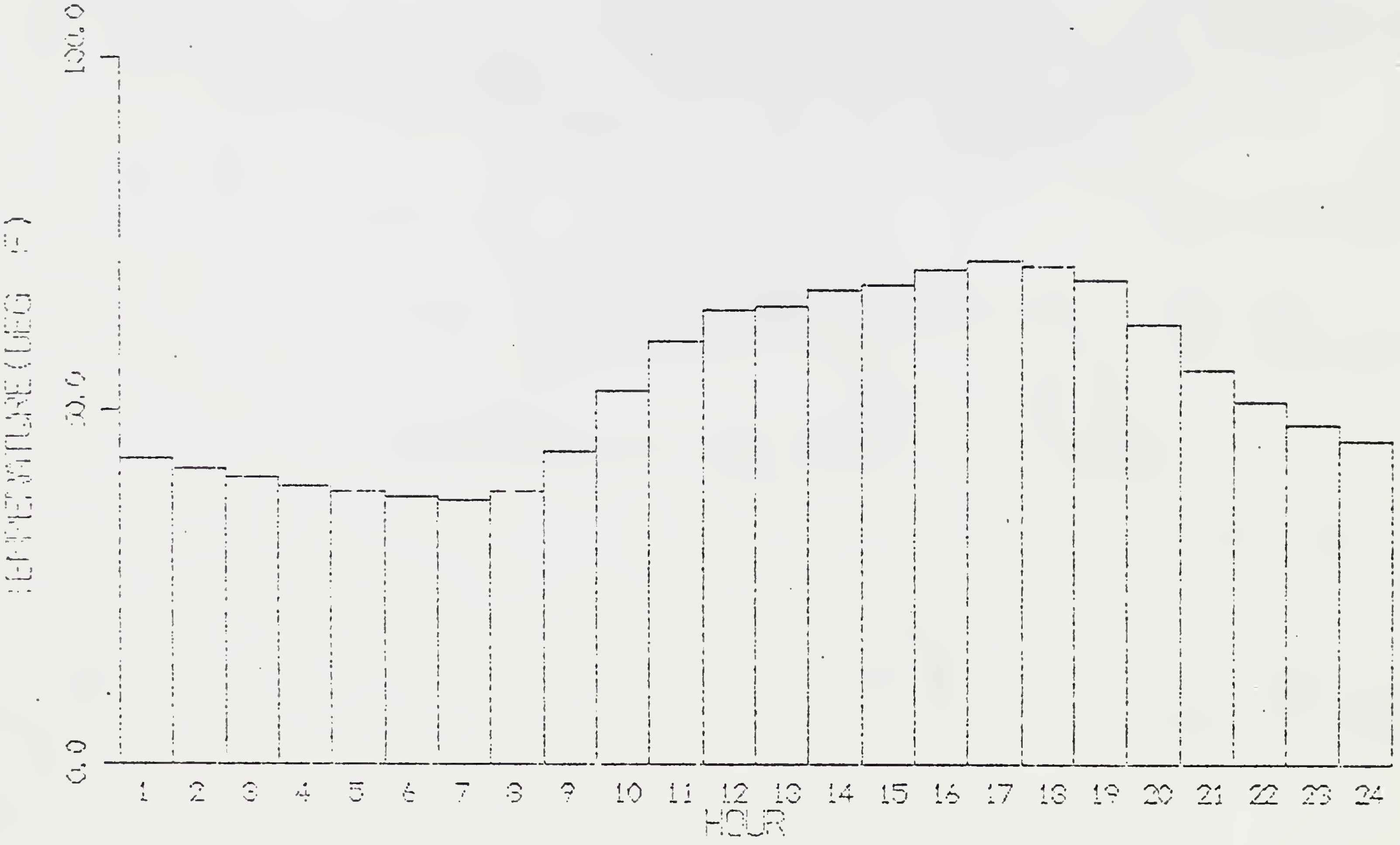
GPLT GOULD.VT



DIURNAL VARIATION OF WIND SPEED AT 200 FEET(MPH)
SITE - 2

```
                         DIURNAL VARIATION OF WIND SPEED AT 200 FEET(MPH)
                          TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                           HOUR
     1  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
AY

1
2
3
4
5
6
7
8
9
0
1
2
3
4
5
6
7                                                                         10  10  11   5   5   5   8.
8
9
0
1
2
3
4
5
6
7
8
9
0

EAN                                                                       10. 10. 11.  5.  5.  5.

                TOTAL NUMBER OF OBSERVATIONS =     72   MEAN VALUE =
```

GPLT GOULD.VT



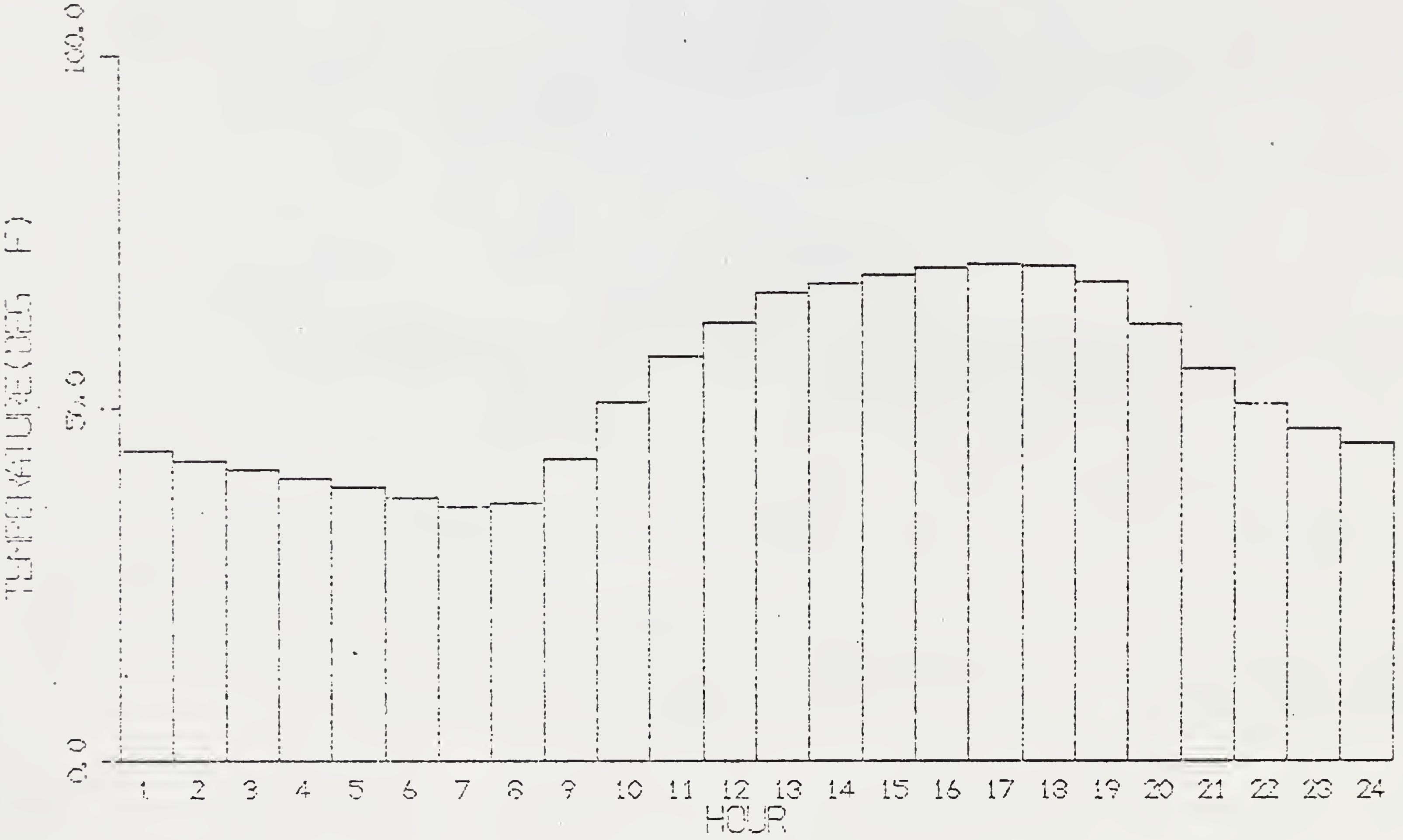
DIURNAL VARIATION OF TEMPERATURE(DEG F)
SITE - 20

DIURNAL VARIATION OF TEMPERATURE(DEG F)
TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

HOUR

AY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	57	55	52	51	50	49	47	49	56	69	76	77	77	78	78	78	79	78	77	74	71	68	66	58	65.
2	52	48	46	45	45	46	43	42	44	48	51	55	60	63	64	65	67	61	65	64	56	49	44	40	53.
3	38	36	35	34	32	31	31	34	42	53	60	64	67	69	71	73	74		72	68	58	53	49	46	52.
4	44	42	41	40	39	38	37	39	48	58	65	69	71	74	75	76	77	77	77	70	60	57	55	56	58.
5	55	54	52	50	50	49	48	50	57	64	72	73	75	76	78	79	78	79	78	75	70	63	56	53	64.
6	50	48	46	44	42	40	39	41	49	59	65	72	74	75	77	77	77	77	77	72	64	61	57	53	60.
7	49	47	45	44	41	39	38	41	49	60	69	72		76	77	77	78	79	75	70	61	55	53	50	59.
8	48	48	45	47	47	46	50	52	55	55	65	77	79	78	79	79	80	81	80	76	66	63	61	58	64.
9	55	53	52	51	50	50	49	50	58	68	75	79		89	82	93	92	92	89	87	79	74	70	69	70.
0	70	66	63	61	63	63	64	68	70	79	86	88	89	78	86	86	87	85	84	82	77	74	74	59	76.
1																				50	39	34	31	26	35.
2																									
3	24	23	23	23	22	21	20	20	26	34	39		49	52	55	58	62	61	60	57	53	48	43	42	40.
4	41	43	40	37	36	37	38	40	41	44	47	52	51	44	49	54	58	57	55	53	49	45	44	45	45.
5	44	45	45	44	43	43	43	43	43	46	48	49	51	51	51	54	58	51	47	46	47	47	45	45	47.
6	45	45	43	42	41	40	41	42	43	47	52	55	58	61	63	65	68	69	67	59	54	49	45		52.
7	40	38	37	35	34	33	30	31	38	47	55		65	66	47	67	69	69	64	55	51	47	45	43	49.
8	42	39	39	38	36	35	34	36	43	52	59	52	63	66	64	68	69	71	70	63	54	50	46	44	52.
9	42	41	39	38	37	36	35	35	42	52	60	64	67	71	74	74	76	76	74	63	54	48	44	40	54.
0	39	38																							39.
1	35	33	31	30	28	27	26	27	34	43	51	56	60	64	65	67	68	68	65	58	50	45	41	39	47.
2	37	35	34	34	32	32	31	32	38	48	55														38.
3															72	73	74	72	67	58	50	47	44	42	60.
4	40	39	38	38	37	36	35	33	37	47	53	58	63	67	70	70	70	69	67	59	52	47	43	42	51.
5	42	40	40	38	37	36	35	36	43	52	63	67	68	67	66	65	66	68	65	55	49	45	42	42	52.
6	41	40	39	37	37	36	35	36	43	52	62	65	65	67	68	69	70	69	65	59	52	47	43	40	52.
7	39	37	35	34	34	33	34	36	44	50	50	47	48	48	48	49	49	48	46	41	40	35	30	28	41.
8	25	24	23	22	21	21	22	21	27	37	47	50	53	55	57	58	59	60	57	52	46	41	37	35	44.
9	32	30	29	27	25	24	24	25	33	45	57	60	61	62	64	65	66	65	61	50	44	39	35	33	44.
0	31	30	30	29	29	27	27	27	35	46	58	63	65	66	67	68	0	68	64	54	40	41	38	36	46.
EAN	43.	42.	41.	39.	38.	38.	37.	38.	44.	53.	60.	64.	65.	67.	68.	70.	71.	70.	69.	62.	56.	51.	48.	46.	

TOTAL NUMBER OF OBSERVATIONS = 7428 MEAN VALUE = 53.

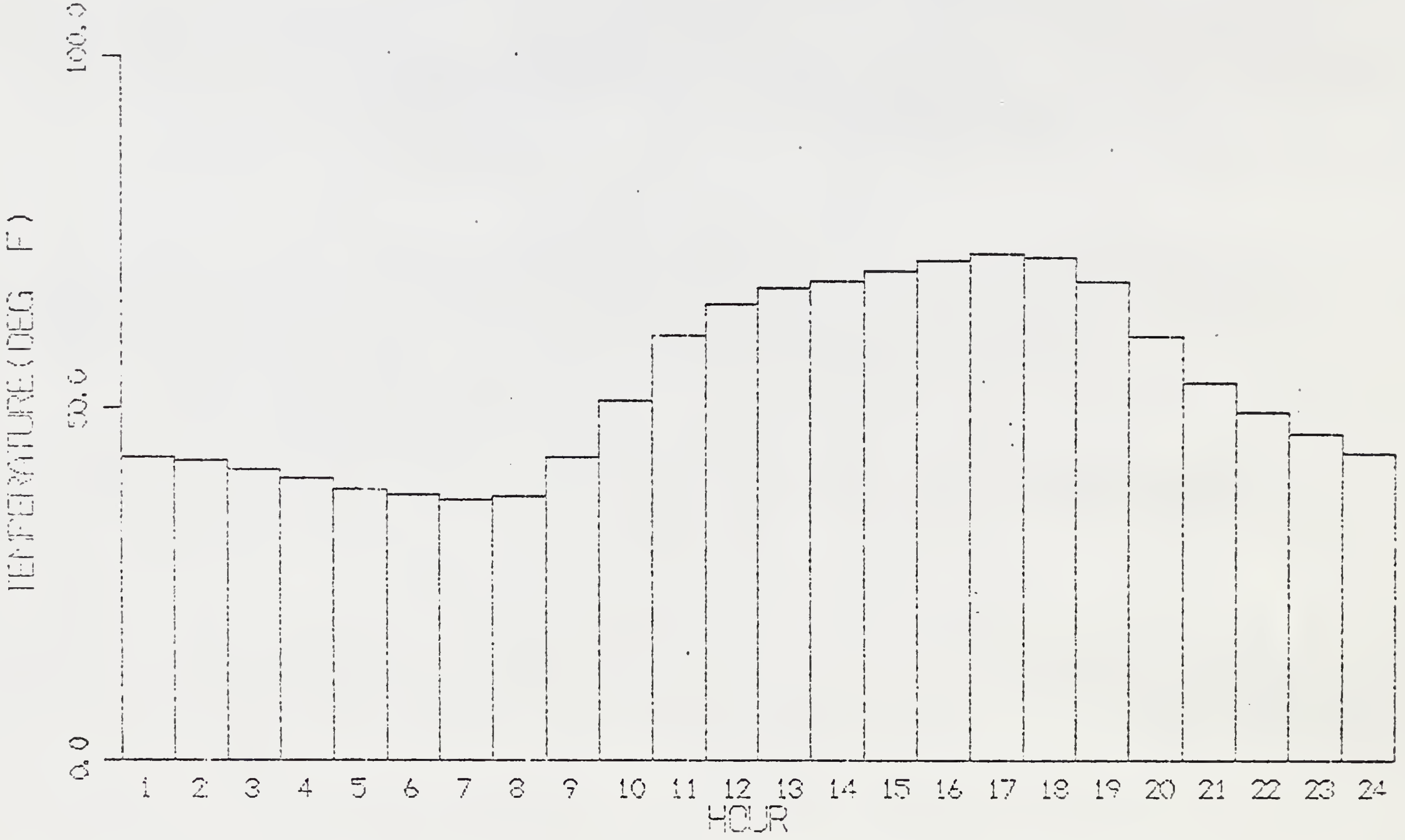


DIURNAL VARIATION OF TEMPERATURE(DEG F)
SITE = 21

DIURNAL VARIATION OF TEMPERATURE(DEG F)
TRAILER NO. - 21 PERIOD(9/ 1/74 TO 9/30/74)

	HOUR																								
AY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
	57	55	52	50	49	48	46	49	57	71	75	77	78	79	79	79	80	81	79	74	71	70	64	55	65.
	50	48	47	46	45	45	43	43	46	49	52	55	59	62	64	65	67	67	66	60	56	48	44	40	53.
	37	35	34	33	31	31	29	31	41	50	58	64	67	70	72	74	75	75	74	68	57	51	46	44	52.
	42	41	40	38	35	33	33	34	43	54	64	69	72	74	76	77	78	78	77	71	60	56	57	57	57.
	54	53	52	51	47	44	46	48	58	67	70	72	77	78	80	80	80	82	79	76	71	63	55	51	64.
	48	45	43	41	40	37	36	39	47	55	66	72		75	76	77	78	78	78	77	71	63	60	57	59.
	52	47	45	43	41	38	37	36	39	48	57	66	73	75		78	79	80	79	76	71	60	56	51	58.
	50	47	47	47	46	45	42	44	46	48	55	65	74	78	79	80	82	82	82	81	76	66	59	56	62.
	54	51	50	49	48	46	43	41	44	54	60	68	78	81	81	83	83	83	82	78	73	67	53	63	64.
	62	58	55	54	58	55	55	51	61	73	76			82	83		87	87	83	77	76	73	71	67	69.
	64	64	64	64	62	61	57	56	61	66	71	74	78	76	78	78	75		61					54	67.
	51	51	51	51	51	49	46	46	47	47	46	46	46	46	45	47	51	51	49	43	38	32	30	27	45.
	24	23	22	21	20	19	18	18	25	34	40	44	48	52			57	57	55	52	48	43	39	36	36.
	35	40	37	34	35	36	36	36	38	42	46	49		45	48	52	47	55	52	50	45	41	42	42	43.
	42	41	41	42	42	41	42	42	42	42	47	46		50	48	54	59	54	47	46	48	47	45	46	46.
	45	45	44	43	42	41	42	42	44	46	52	56	59	61	63	67	67	69	67	59	52	49	44	43	52.
	38	37	35	34	32	30	28	29	35	44	52	58	63	62	63	65	66	68	62	55	48	44	41	42	48.
	41	39	36	36	31	30	31	30	36	50	56	61	63	64	68	68	67	57	66	60	55	45	41	39	49.
	38	38	37	36	35	33	29	30	39	49	56	61	66	69	71	72	73	72	68	62	49	46	41	37	51.
	35	35	34	33	29	29	27	28	36	46	51	55	59	61	63	65	66	55	61.	56	51	49	43	37	47.
	34	32	30	28	26	26	25	26	33	43	51	56	60	63	66	68	69	69	65	58	47	43	40	36	45.
	35	33	31	31	31	29	28	29	35	46	53	59	65	67	68	66	68	68	64	55	49	43	41	40	48.
	38	37	37	35	35	36	36	35	42	51	61	64	68	68	67	69	68	70	65	56	49	43	41	40	51.
	38	37	36	36	35	31	28	27	36	46	53	59	62	67	68	69	68	65	67	58	48	44	40	39	49.
	37	36	36	33	30	29	27	29	39	48	56	65	68	68	68	65	65	68	63	54	46	44	42	42	49.
	41	37	36	37	37	35	36	36	42	53	61	64	65	67	68	68	69	67	67	60	54	44	41		52.
																66	66	64	61	47	41	36	34	31	49.
	31	29	28	25	20	16	14	16	27	38	49	60	63	67	68	68	68	65	64	52	45	40	37	36	43.
AN	44.	42.	41.	40.	39.	37.	36.	37.	43.	51.	57.	62.	66.	67.	69.	70.	70.	70.	68.	62.	55.	54.	47.	45.	

TOTAL NUMBER OF OBSERVATIONS = 7640 MEAN VALUE = 53.



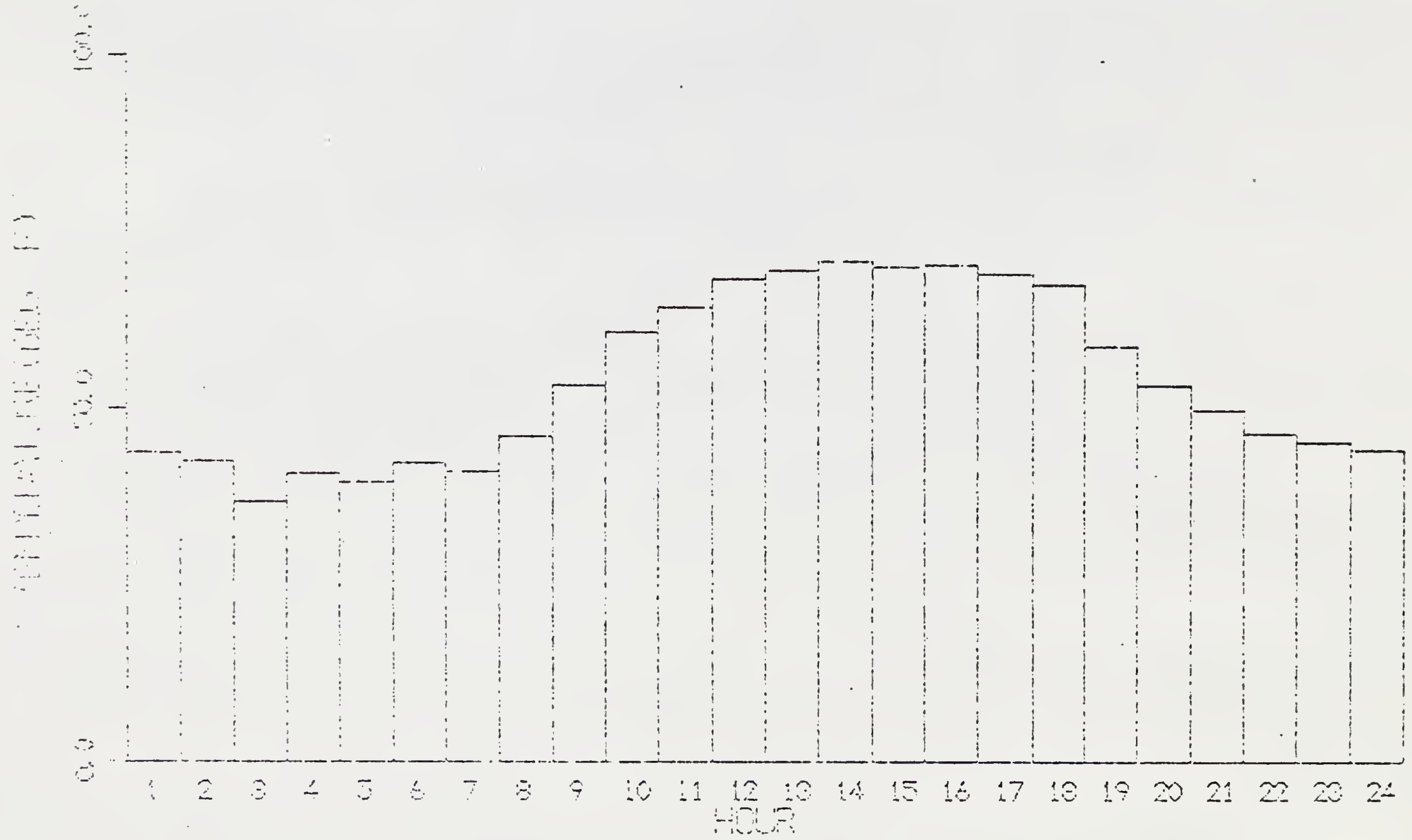
DIURNAL VARIATION OF TEMPERATURE(DEG F)
SITE - 22

DIURNAL VARIATION OF TEMPERATURE(DEG F)
TRAILER NO. - 22 PERIOD(9/ 1/74 TO 9/30/74)

HOUR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
	58	36	55	53	52	51	49	50	56	68	77	79	79	80	79	78	80	80	78	75	71	68	65	61	67.
	54	50	47	46	45	46	45	44	48	52	55	58	64	67	68	69	70	70	69	64	56	49	45	41	56.
	40	36	38	40	35	33	33	35	43	53	55	66	70	72	74	76	77	77	75	69	59	56	51	49	56.
	46	43	43	42	41	40	39	41	49	58	69	73	74	76	77	79	79	80	79	71	62	59	58	57	62.
	54	55	54	53																					55.
														81	80	79	79	71	66	58	54	53	51		67.
																						34	32	28	31.
													58	60	64	66	67	65	63	59	54	49	45	44	58.
	43	45	42	38	37	39	40	41	44	46	48	53	56	45	50	58	61	58	55	54	51	47	46		46.
		45	46	46	45	45	45	45	45	48	51	52	52	52	53	60									49.
													64												55.
											59		67	69	71	73	73	71	65	58	52	49	48	43	62.
	42	43	41	41	40	39	38	38	44	52	65	69	70	73	75	77	76	74	73	63	55	51	48	44	56.
												69	73	74	78	79	79	79	76	64	55	49	46	42	67.
	42	42	41	39	39	37	33	33	39	49	56	61	65	69	72	72	72	71	68	62	56	53	48	42	53.
	39	37	36	34	32	31	30	31	37	46	58	65	68	71	73	73	75	75	70	60	54	51	47	46	52.
	42	40	39	38	37	36	35	35	41	50	63	70	72	73	75	75	73	76	72	60	54	51	48	45	55.
	42	41	40	39	39	39	38	39	45	54	68	67	73	73	74	73	74	74	69	60	53	49	48	45	55.
	44	43	41	41	40	40	40	39	44	52	57	62	66	71	72	74	73	70	68	60	53	51	46	44	54.
	43	42	42	41	42	40	39	38	44	53	64	71	72	68	66	65	67	70	68	55	50	47	46	44	54.
	43	42	40	40	39	39	38	38	43	52	64	68	68	68	67	68	70	72	65	56	52	48	45	44	53.
	41	39	37	37	35	34	35	36	42	49	53	49	50	51	52	51	51	51	48	44	40	35	31	26	43.
	27	25	26	25	24	24	23	24	30	38	50	55	57	59	62	62	62	63	59	53	45	39	37	36	42.
	35	34	32	31	29	29	28	28	35	45	57	64	67	68	69	71	73	71	66	54	47	43	42	39	48.
	36	36	35	33	33	32	31	31	39	49	61	70	72			76	75	74	67	56	50	47	44	41	50.
EAN	43.	42.	41.	40.	38.	38.	37.	38.	43.	51.	60.	65.	67.	68.	69.	71.	72.	71.	68.	56.	54.	49.	47.	44.	

TOTAL NUMBER OF OBSERVATIONS = 5659 MEAN VALUE = 54.



DIURNAL VARIATION OF TEMPERATURE AT 6 FEET(DEG F)
SITE - 23

CORPORATION

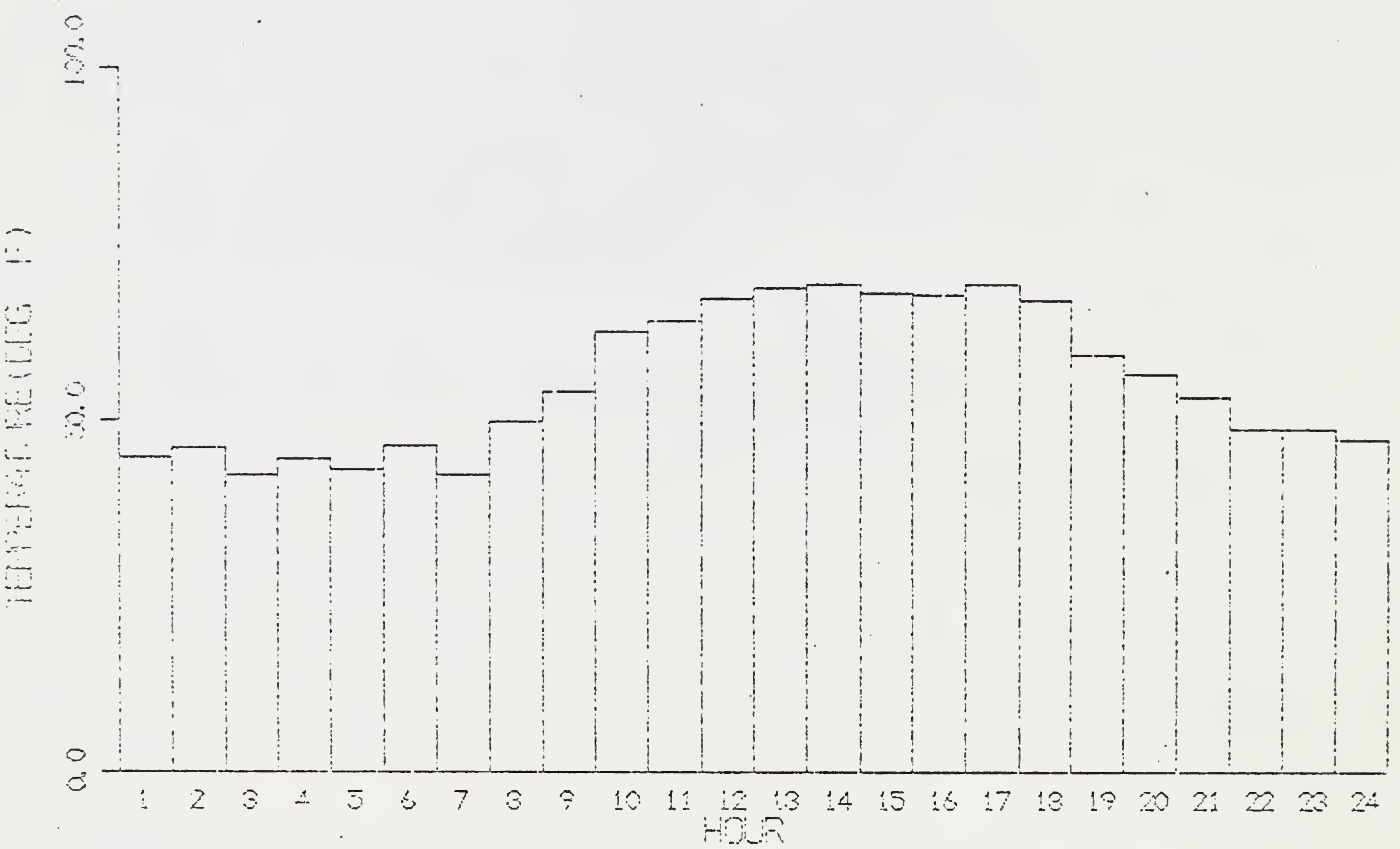
DIURNAL VARIATION OF TEMPERATURE AT 6 FEET(DEG F)
TRAILER NO. - 23 PERIOD(9/ 1/74 TO 9/30/74)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEA
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																			63	58	51	50	49	48	53.
18	47	45	46	45	43	42	41	42	50	59				74	73	76	75	75	65	63	57	54			57.
19									51	56	64	68	73	75		80	77	76							68.
20																									
21																									
22																									
23																									
24																									
25																65	67	72	67	54	52	51	50	49	59.
26	48	49	48	48	47	46	41	45	52	63	70	73	71	70	69	73	73	72	67	61	56	48	50	48	58.
27	47	42	45	44	44	48	47	53	52	53	52	52	53	54	56	56	53	51	46	41	39	36	33	32	48.
28	30	29	28	28	28										66	0	65	60	52	46	45	39	40	40	43.
29	40		35	37	35	34	34	41	54	64	69	71	72	74	74	72			55	49	45	45	44	43	52.
30	44	44	17	43	38	41	40	47	58	68	0	75	76	77	77	71	69	64	55	50	49	49	46	47	55.
MEAN	44.	43.	37.	41.	39.	42.	41.	46.	53.	61.	64.	68.	69.	71.	70.	70.	69.	67.	59.	53.	50.	47.	45.	44.	

TOTAL NUMBER OF OBSERVATIONS = 1727 MEAN VALUE = 54.

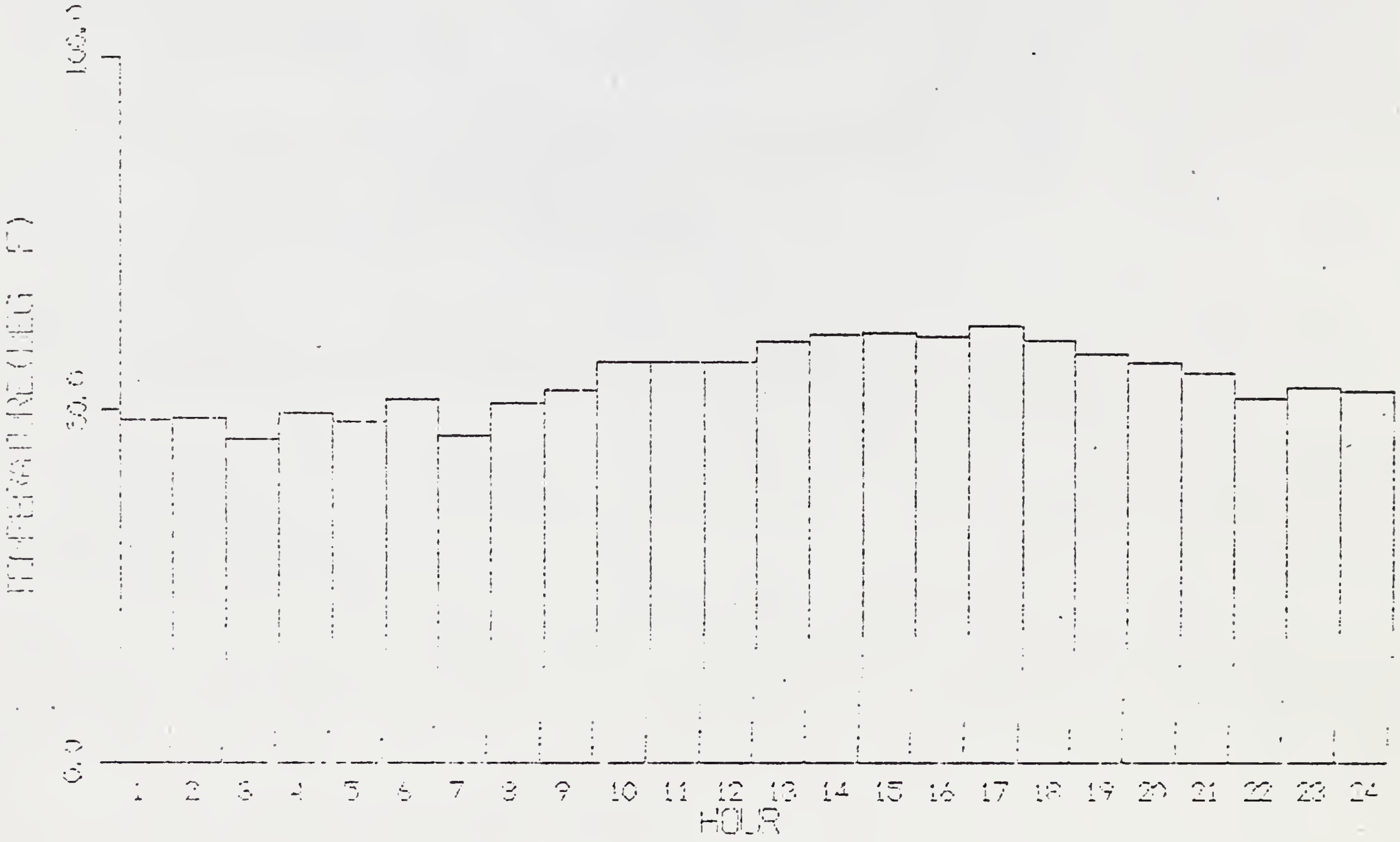
SPLT GOULD.VT



DIURNAL VARIATION OF TEMPERATURE AT 30 FEET(DEG F)
SITE - 23

CORPORATION

```
                    DIURNAL VARIATION OF TEMPERATURE AT 30 FEET(DEG F)
                        TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                  HOUR
        1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

 1
 2
 3
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17
18                                                                         72   70   75   75   66   66   62   60              69.
19                                             52   55   65   67   73   74        79   77   73                                  68.
20
21
22
23
24
25                                                                              66   69   72   61   61   57   55   54   53    61.
26     54   52   45   51   50   49   39   48   54   63   69   72   71   69   70   73   73   64   69   53   59   45   55   53    59.
27     53   49   44   49   50   51   44   55   49        53   51   52   52   53   48   53   51   47   44   41   39   37   36    48.
28     26   33   33   32   33                                                56        64   61   54   50   48   42   44   40    44.
29     37        38   41   40   39   40   44   54   64   68   70   71   73   73   67   69        56   53   50   49   46   47    55.
30     50   48   48   47   40   44   44   50   59   67        74   75   75   75   73   70   66   59   55   53   53   52   52    55.

MEAN  45.  46.  42.  45.  43.  46.  42.  50.  54.  63.  64.  67.  69.  69.  68.  68.  69.  67.  59.  57.  53.  49.  49.  47.

                       TOTAL NUMBER OF OBSERVATIONS =  1539   MEAN VALUE =   56.


PLT GOULD,VT
```

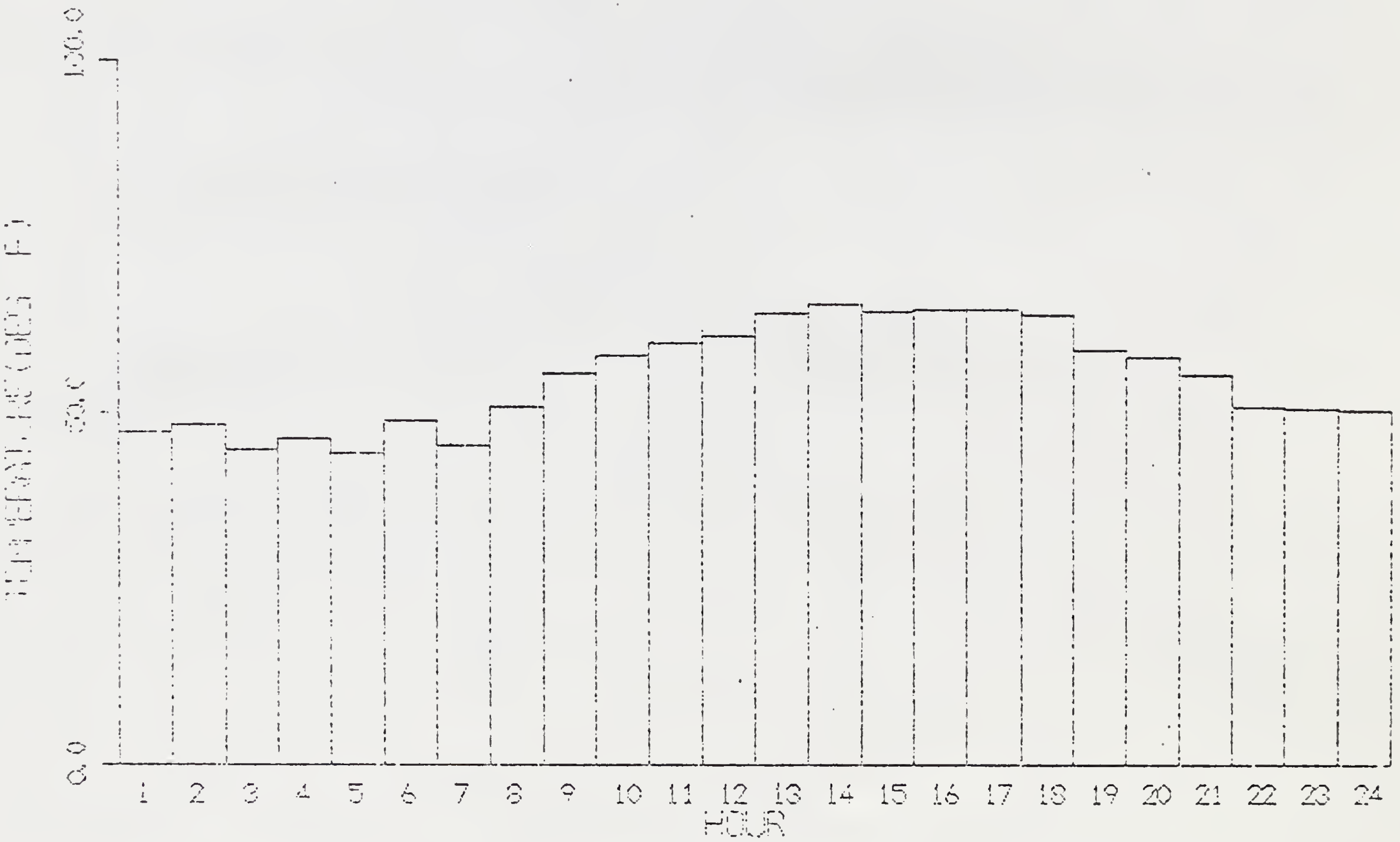


DIURNAL VARIATION OF TEMPERATURE AT 100 FEET(DEG F)
SITE - 23

CORPORATION

```
                        DIURNAL VARIATION OF TEMPERATURE AT 100 FEET(DEG F)
                             TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                 HOUR
       1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
DAY

 1
 2
 3
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17                                                                             63  62  60  56  57  55   59.
18
19
20
21
22
23
24
25                                                                 64  65  66  57  62  61  58  58  57   61.
26    57  56  49  56  54  54  44  52  53  59  62  63  64  65  66  67  69  61  66  63  61  46  58  56   59.
27    57  48      53  55  54  45  54  52  51  49  46  46  46  46  41  47  47  45  43  41  44  39  39   46.
28    29  35  36  37  37                                  57      56  57  54  51  49  44  48  45   46.
29    41      42  46  46  45  45  47  51  57  58  51  61  63  64  60  65      57  56  54  54  53  53   54.
30    54  54  53  52  48  51  49  50  54  60      64  66  66  67  68  67  65  60  58  57  58  57  56   59.

MEAN  48. 49. 46. 49. 48. 51. 46. 51. 53. 57. 57. 57. 60. 61. 61. 61. 62. 60. 58. 57. 55. 52. 53. 53.

                     TOTAL NUMBER OF OBSERVATIONS =  1423   MEAN VALUE =   54.
```

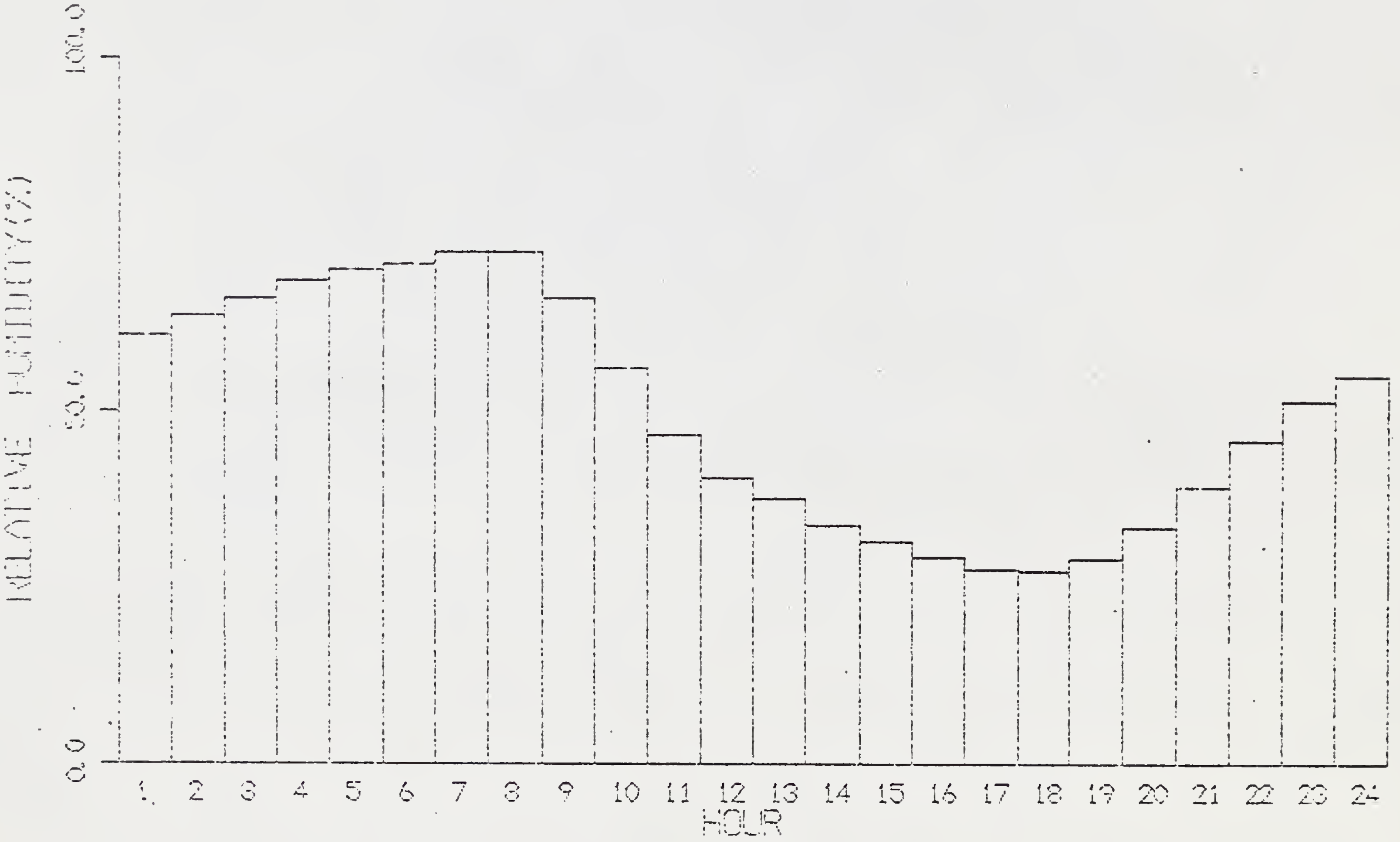
```
;GPLT GOULD.VT
```



DIURNAL VARIATION OF TEMPERATURE AT 200 FEET(DEG F)
SITE - 23

CORPORATION

```
               DIURNAL VARIATION OF TEMPE  TURE AT 200 FEET(DEG F)
                  TRAILER NO. - 23  PE  OD( 9/ 1/74 TO  9/30/74)

                                        HOUR
         1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

  1
  2
  3
  4
  5
  6
  7
  8
  9
 10
 11
 12
 13
 14
 15
 16
 17                                                                                         63   61   60   57   54   54   59.
 18     51   51   51   52   50   48   47   47   53   57                  68   67   70   70   71   63   64   61   59             55.
 19                                             60   56   62   63   68   69        74   74   73                                67.
 20
 21
 22
 23
 24
 25                                                                                64   65   68   58   62   61   56   55   55   61.
 26     55   54   47   53   53   52   43   51   55   60   64   66   66   66   67   69   63   61   67   53   61   49   58   57   59.
 27     56   52   46   51        55        54   51   51   49   47   48   49   49   44   49   48   45   42   42   39   37   35   48.
 28     28   33   32   30   34                                                60        60   57   54   50   48   43   46   45   44.
 29     38        40   43   43   42   42   48   54   59   62   64   65   67   67   63             57   56   52   49   49        54.
 30     52   50   49   46   41   45   48   52   58   63             70   70   71   69   67   64   60   58   54   52   53   53   57.

MEAN   47.  48.  45.  46.  44.  49.  45.  51.  55.  58.  60.  61.  64.  65.  64.  65.  65.  64.  59.  58.  55.  51.  51.  50.

                        TOTAL NUMBER OF OBSERVATIONS =   1696    MEAN VALUE =    55.

IGPLT GOULD.VT
```



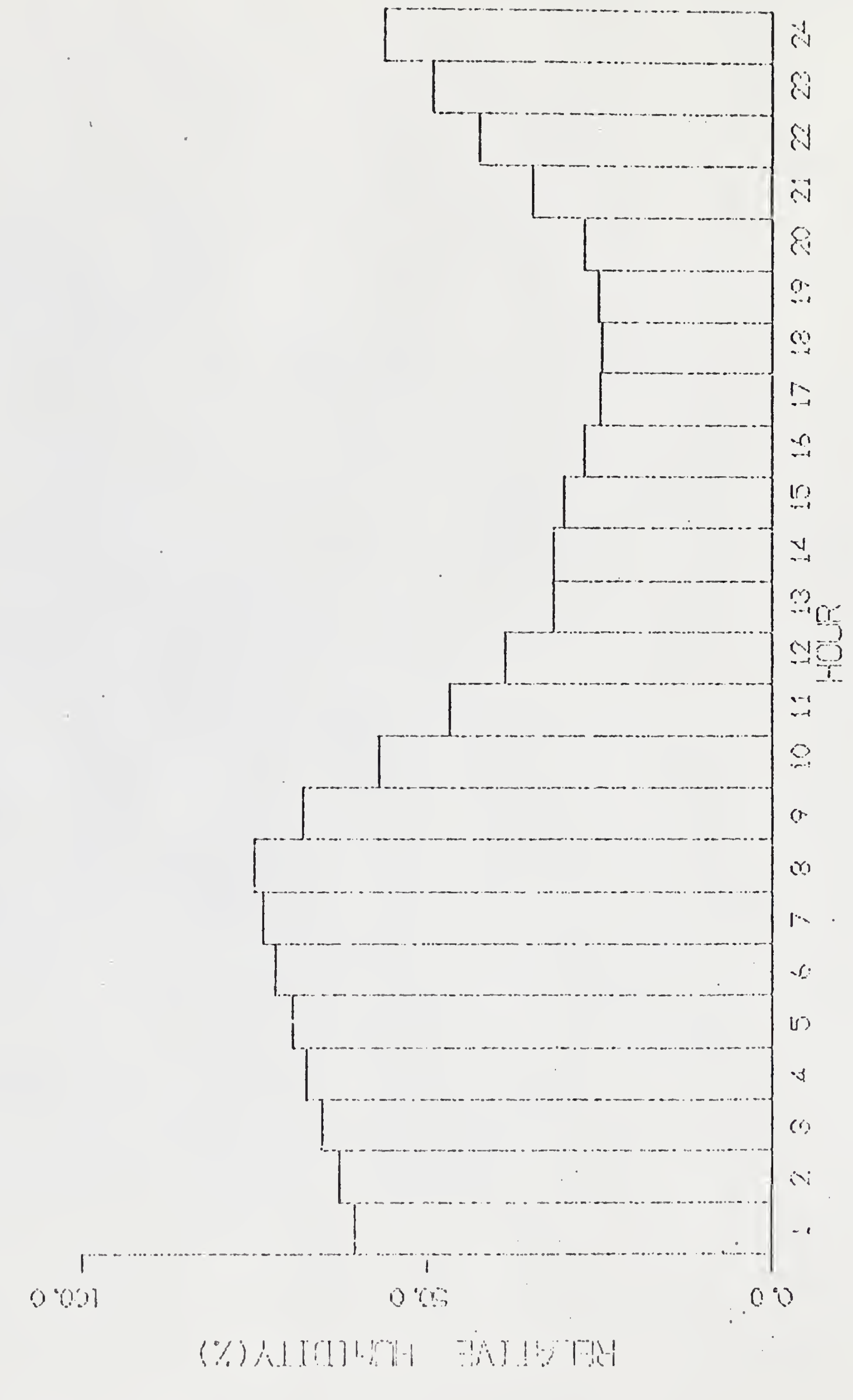
DIURNAL VARIATION OF RELATIVE HUMIDITY
SITE - 20

DIURNAL VARIATION OF RELATIVE HUMIDITY
TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	27	29	32	34	36	39	41	43	42	35	26	24	23	22	22	22	22	21	21	21	24	26	30	38	30.
2	55	65	69	73	73	71	81	85	77	70	63	55	46	41	37	34	32	30	29	29	33	34	38	44	53.
3	52	59	65	67	70	74	74	70	59	46	37	32	30	28	26	24	24	23	23	22	23	25	26	29	43.
4	31	34	37	40	42	45	47	49	45	38	32	29	26	24	24	23	22	22	22	23	25	29	32	34	33.
5	35	36	38	40	41	42	45	44	42	37	32	29	28	27	25	23	23	23	23	25	28	33	44	54	34.
6	56	58	60	62	63	63	65	65	54	43	36	29	26	24	23	22	22	22	22	22	24	25	27	30	40.
7	32	36	40	42	44	47	50	50	45	38	31	26		22	22	21	21	24	21	21	23	25	26	33	32.
8	33	35	37	38	39	39	38	37	36	37	35	28	25	25	26	25	25	24	23	23	26	30	33	37	32.
9	43	48	51	54	55	55	57	58	51	40	35	29		25	24	23	23	23	23	23	24	26	30	34	36.
10	36	40	45	51	52	49	49	46	49	42	31	28	26	26	26	25	24	24	24	25	27	30	31	34	35.
11	44	43	45	46	46	47	52	57	54	44	39	36	32	32	31	30	30	33	52	82	91	94	95	97	53.
12	96	96	96	97	96	94	93	93	93	92	89	84	80							59	67	83	88	95	89.
13	99	99	100	100	100	100	100	99	86	77	66		52	45	38	32	29	28	27	27	28	32	41	50	63.
14	55	52	60	69	74	74	73	70	73	85	85	73	70	92	85	73	60	62	65	72	63	92	95	96	75.
15	95	91	90	92	93	93	97	99	99	96	89	84	82	86	89	78	64	78	96	96	95	95	09	100	91.
16	100	100	100	100	100	100	100	99	98	89	83	71	61	54	47	38	29	25	20	39	56	74	85		73.
17	92	95	96	97	99	99	100	99	88	68	50		27	25	25	24	23	22	26	45	61	72	78	79	65.
18	83	86	85	90	93	95	95	95	80	59	42	60	34	29	27	25	25	24	24	26	42	58	66	73	59.
19	75	76	79	81	82	85	86	87	74	54	40	34	29	26	22	21	20	18	18	19	25	33	44	57	54.
20	65	68																							67.
21	75	80	84	88	91	92	94	94	81	61	45	38	35	30	27	25	24	23	24	25	34	47	56	63	50.
22	67	73	75	77	81	81	84	82	71	54	43														72.
23															25	24	24	24	25	28	40	50	58	62	35.
24	68	70	74	75	77	80	82	86	78	61	48	40	33	28	24	23	22	21	22	25	32	41	51	56	51.
25	58	66	71	77	79	82	85	84	70	55	39	32	28	26	25	25	25	24	24	28	36	48	57	59	51.
26	60	61	63	68	71	74	77	77	66	53	37	31	28	26	24	23	21	24	20	23	27	32	41	54	45.
27	56	60	62	62	60	60	57	54	47	36	31	30	30	30	30	30	30	31	33	35	40	52	65	74	46.
28	76	81	85	87	88	89	87	89	80	62	45	37	33	30	27	26	25	25	25	20	29	33	38	43	53.
29	48	54	57	58	60	61	63	63	53	43	31	25	24	22	21	21	22	20	20	20	21	23	26	30	37.
30	33	37	39	41	43	44	46	47	44	38	29	23	21	20	19	18		18	18	19	21	23	26	29	31.
MEAN	61.	63.	65.	68.	70.	71.	73.	73.	66.	56.	47.	41.	38.	34.	32.	29.	28.	27.	29.	34.	39.	46.	52.	55.	

TOTAL NUMBER OF OBSERVATIONS = 7874 MEAN VALUE = 50.



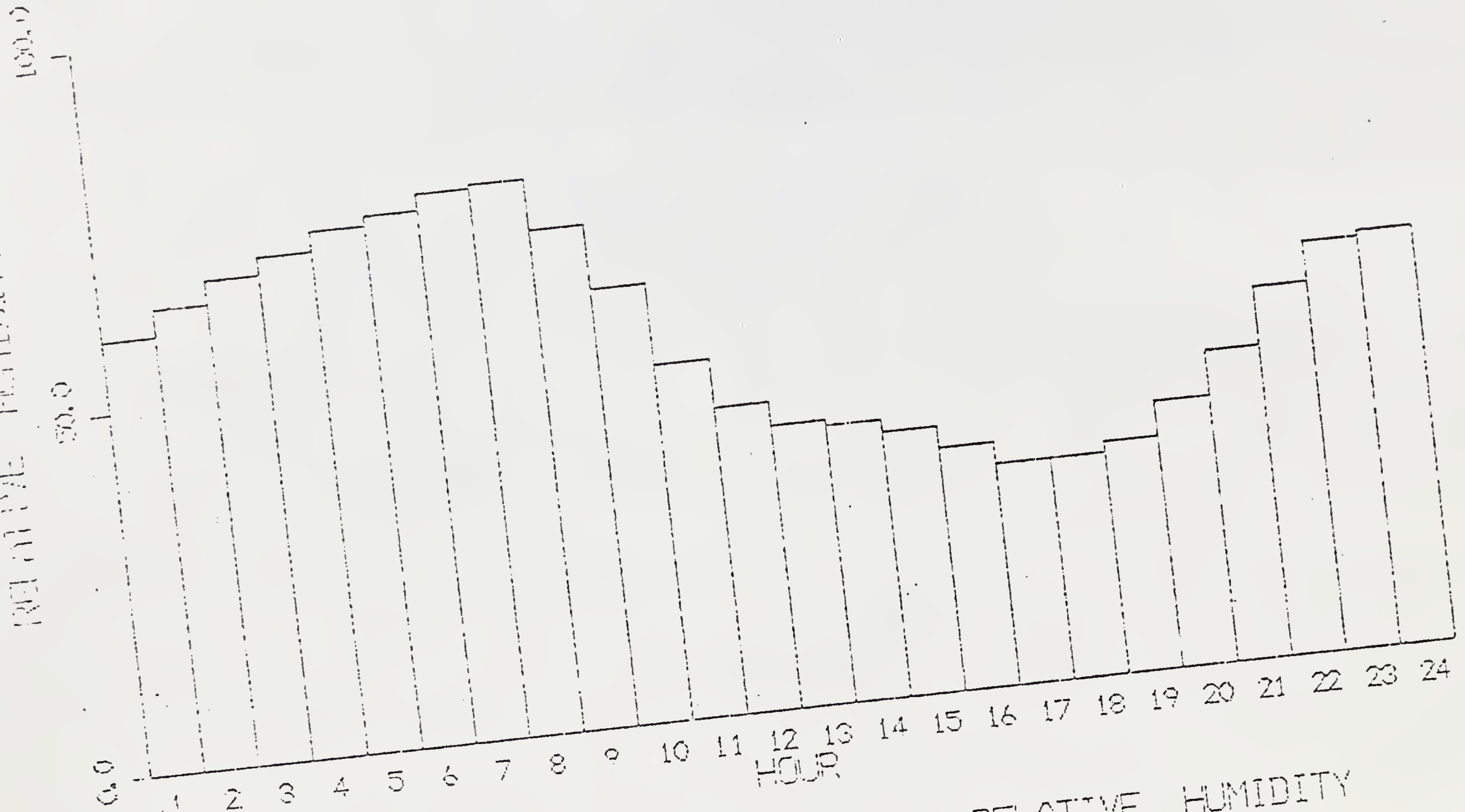
DIURNAL VARIATION OF RELATIVE HUMIDITY
SITE - 21

CORPORATION

DIURNAL VARIATION RELATIVE HUMIDITY
TRAILER NO. - 21 PERIOD(9/ 1/74 TO 9/30/74)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	26	28	30	32	35	39	42	43	40	31	23	20	19	19	19	19	18	17	17	18	21	23	28	45	28.
2	63	67	70	71	73	76	82	81	73	67	62	54	49	43	38	34	31	29	28	29	31	35	39	45	53.
3	55	62	67	69	72	74	75	73	63	48	38	31	28	26	24	23	22	20	19	19	21	23	26	29	43.
4	33	35	38	40	43	48	50	51	47	39	31	25	24	22	22	21	20	20	20	20	23	27	29	30	32.
5	33	34	35	37	40	48	49	48	41	34	28	27	25	24	21	20	20	20	20	21	26	32	45	50	33.
6	60	63	64	65	66	66	68	67	57	45	35	27		23	22	21	20	19	19	19	20	22	24	27	41.
7	30	33	38	43	46	50	52	56	55	47	39	31	24	21		19	19	18	18	18	19	22	25	28	33.
8	31	34	36	37	38	39	41	42	43	47	41	33	26	23	22	22	22	21	21	19	19	23	29	36	31.
9	40	48	51	54	57	60	63	67	66	55	45	36	28	23	22	21	21	21	20	21	22	24	29	32	39.
10	34	38	45	49	46	49	52	62	49	34	26			22	22		20	19	20	22	24	27	29	33	35.
11	41	44	45	47	47	49	58	64	57	47	38	33	30	28	29	26	26		52					81	43.
12	93	93	93	92	92	93	94	93	92	93	91	89	87	73	83	78	74	69	45	48	64	62	88	93	83.
13	95	95	96	95	95	96	95	96	93	75	62	55	50	42			26	25	25	25	30	35	47	53	65.
14	51	55	61	70	73	75	73	69	65	74	78	72		87	74	62	51	51	60	67	79	86	91	91	71.
15	91	91	87	91	90	91	91	91	91	91	84	81		79	88	76	57	67	91	91	91	91	91	91	87.
16	87	91	91	91	91	91	91	91	91	88	76	64	53	49	39	32	25	21	21	33	59	66	83	87	67.
17	91	92	92	92	92	92	92	92	89	71	52	40	25	22	19	19	19	18	19	30	56	72	76	77	57.
18	77	81	85	88	91	92		92	86	61	45	35	29	25	22	19	20	19	19	21	37	61	69	77	55.
19	78	78	81	84	84	85	92	90	76	56	42	30	24	21	18	16	15	14	15	16	23	32	43	59	57.
20	68	71	73	74	83	84	86	86	73	53	47	41	36	33	30	27	25	24	24	27	33	38	50	69	53.
21	75	81	85	87	90	91	91	90	79	61	43	34	29	25	22	20	19	18	19	21	32	47	60	65	54.
22	71	75	77	80	80	83	85	84	74	55	41	31	27	24	22	22	23	21	22	26	42	62	69	71	53.
23	72	74	72	74	75	75	75	76	67	58	39	28	22	19	19	19	19	17	18	25	39	53	62	55	49.
24	66	68	71	73	78	85	88	88	77	56	38	29	23	21	19	16	16	15	15	16	26	39	53	57	46.
25	60	63	69	71	80	84	86	85	74	59	44	28	22	19	19	18	19	17	19	22	33	47	52	54	45.
26	55	60	65	67	69	70	73	72	57	45	31	23	21	19	16	15	13	13	13	16	20	25	39		39.
27																									
28																									
29																13	14	13	13	13	15	18	21	24	16.
30	27	30	34	36	40	50	60	60	50	40	31	23	17	14	13	13	13		13	14	17	19	23	26	29.
MEAN	61.	63.	65.	68.	70.	72.	74.	75.	68.	57.	47.	39.	32.	32.	30.	27.	25.	25.	25.	27.	35.	42.	49.	56.	

TOTAL NUMBER OF OBSERVATIONS = 7602 MEAN VALUE = 49.

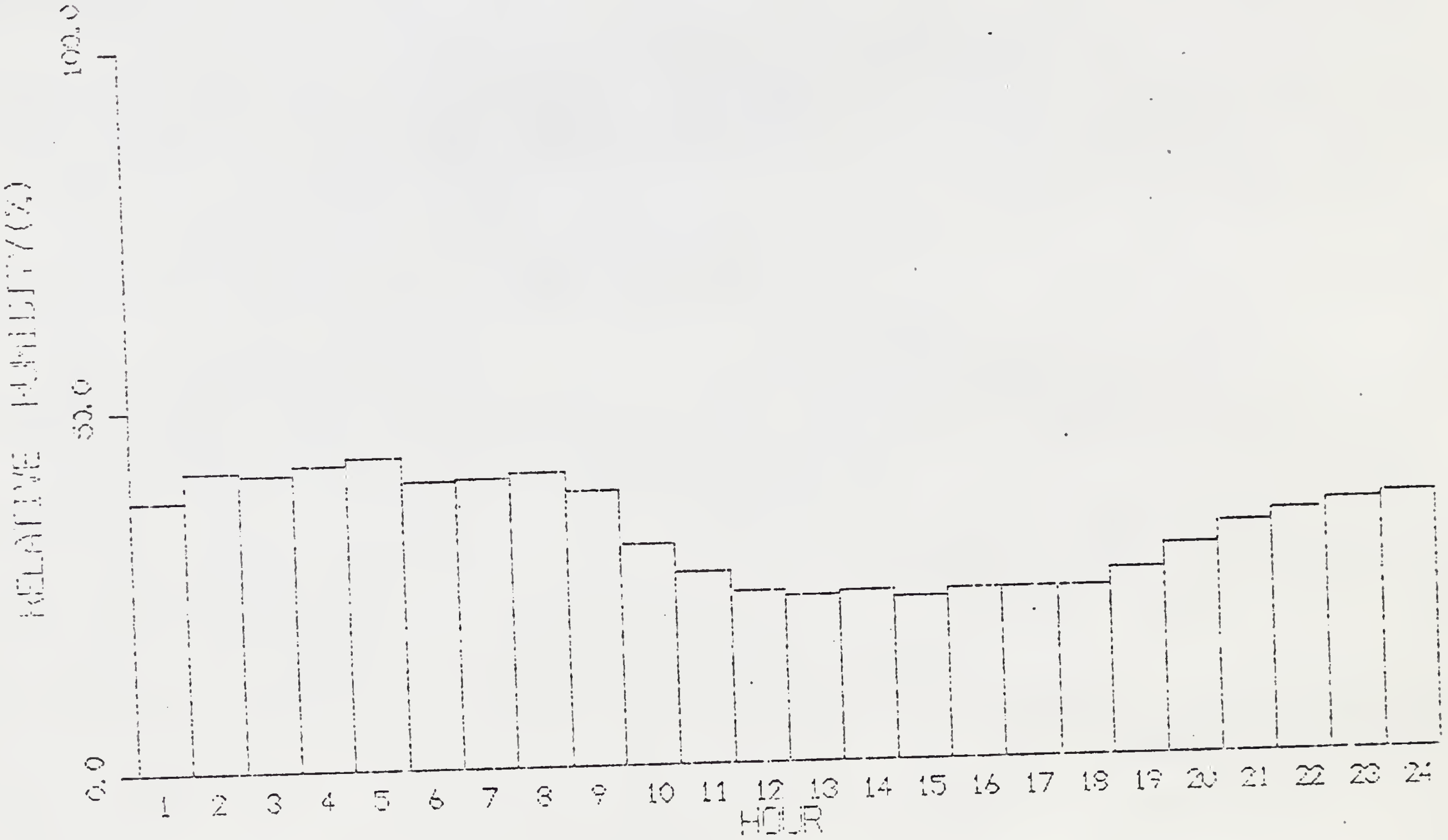


DIURNAL VARIATION OF RELATIVE HUMIDITY
SITE - 22

DIURNAL VARIATION OF RELATIVE HUMIDITY
TRAILER NO. - 22 PERIOD(9/ 1/74 TO 9/30/74)

	HOUR																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	31	33	34	35	38	39	42	45	45	39	30	28	27	26	26	27	26	26	25	26	26	31	35	40	33.
2	55	69	75	79	80	77	80	85	76	69	62	57	48	42	40	38	35	35	34	34	35	39	44	52	56.
3	59	66	69	68	71	74	76	73	61	51	39	33	32	30	30	29	28	27	27	27	28	29	31	33	46.
4	34	36	38	40	42	44	46	48	47	42	35	31	29	28	28	27	27	26	26	27	30	32	34	36	35.
5	37	38	39	40																					38.
6																									
7																									
8																									
9																									
10																									
11														35	35	35	35	37	49	84	93	96	98		61.
12																						90	98	99	95.
13													51	43	36	33	31	31	31	31	33	38	46	53	38.
14	59	56	63	74	81	79	79	76	80	92	91	79	67	94	88	71	62	65	77	82	85	91	96		76.
15		93	91	91	92	93	97	100	100	97	88	85	87	90	90	75									92.
16													58												58.
17											53		33	31	29	28	27	27	33	50	68	75	75	79	47.
18	83	84	89	90	93	93	95	95	83	69	47	39	35	31	28	27	28	28	25	34	50	63	70	73	51.
19												36	31	29	26	25	24	23	23	25	31	40	53	65	33.
20	69	65	67	71	71	77	86	87	75	59	49	45	41	35	32	32	31	31	31	32	38	43	53	69	54.
21	79	82	86	88	92	93	94	93	81	65	47	39	36	32	29	28	27	27	27	30	39	45	54	58	57.
22	67	72	73	76	79	82	84	82	71	59	43	35	32	31	29	29	30	29	29	37	50	57	61	61	55.
23	71	72	73	75	74	76	78	79	71	58	43	40	29	28	27	28	28	27	29	32	42	52	57	60	52.
24	65	68	71	75	76	78	79	80	73	61	51	44	38	32	29	27	27		26	31	38	43	52	63	54.
25	68	73	75	79	77	80	83	84	73	59	45	34	31	31	32	33	32	30	31	36	45	55	57	60	55.
26	64	64	68	69	72	75	77	78	71	59	43	35	32	31	31	30	28	25	25	27	32	36	42	54	49.
27	57	62	65	64	64	66	64	62	56	46	38	36	35	35	35	34	35	37	38	41	48	62	76	82	52.
28	84	83	88	89	91	91	91	90	80	66	49	39	36	34	32	30	29	29	29	30	33	36	44	49	57.
29	53	54	56	57	58	58	59	59	55	47	38	30	27	25	25	24	23	23	23	23	25	27	29	33	34.
30	33	35	37	39	41	42	43	45	43	39	33	26	23			21	21	21	21	22	24	26	27	29	32.
MEAN	60.	64.	67.	69.	72.	74.	76.	76.	69.	60.	49.	42.	39.	38.	36.	34.	31.	31.	32.	37.	43.	51.	55.	57.	

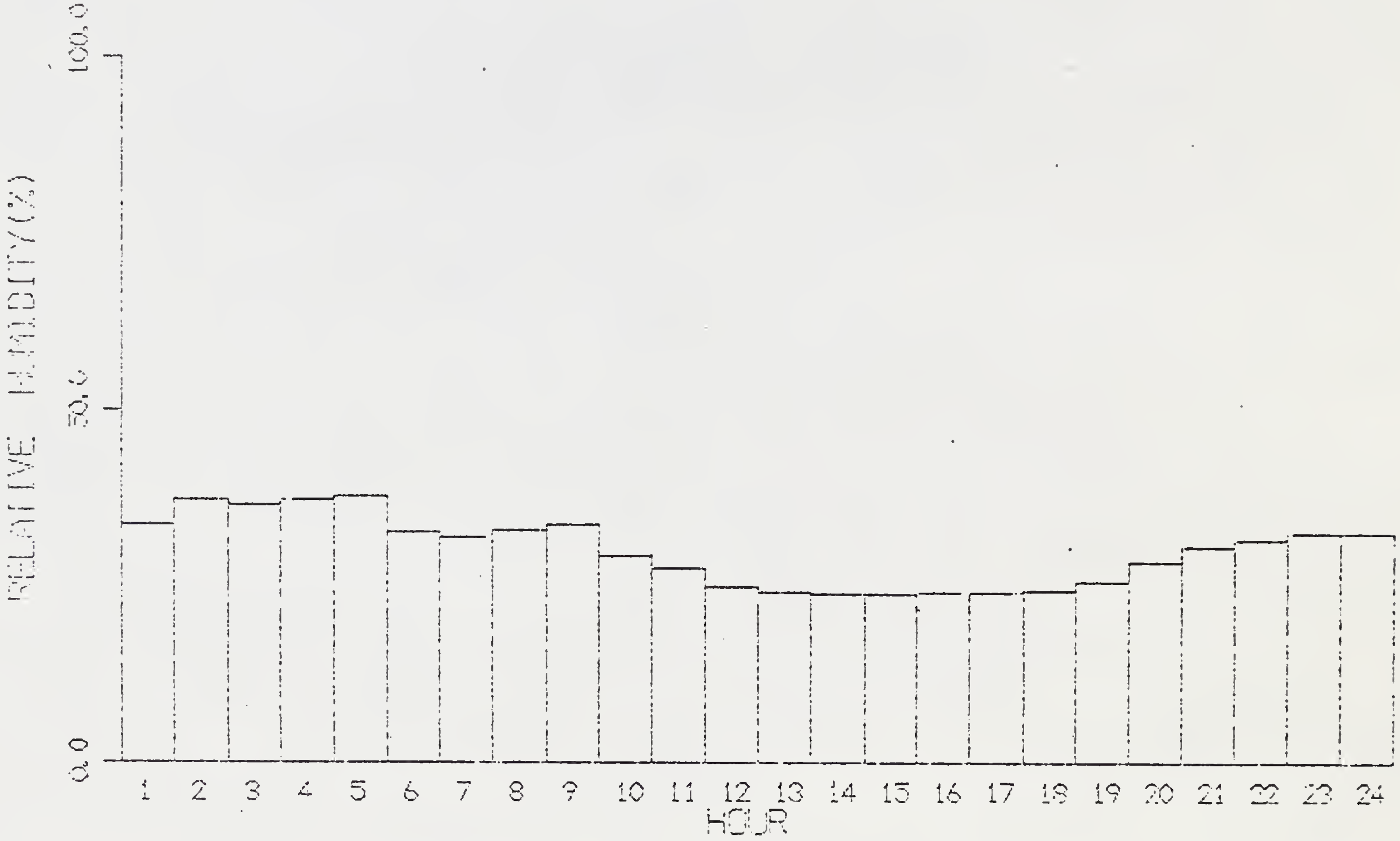
TOTAL NUMBER OF OBSERVATIONS = 5646 MEAN VALUE = 52.



DIURNAL VARIATION OF RELATIVE HUMIDITY AT 6 FEET
SITE. - 23

```
                        DIURNAL VARIATION OF   ATIVE HUMIDITY AT 6 FEET
                          TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                               HOUR
       1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24   MEAN
DAY

 1
 2
 3
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17                                                                                             32   37   44   48   48   49   44.
18    53   57   57   59   63   64   65   66   59   46                  29   27   27   27   26   26   30   33   36             46.
19                                            45   35   31   29   27   26        24   22   22                                  30.
20
21
22
23
24
25                                                                               28   27   26   26   29   32   33   35   35   31.
26    37   38   40   41   43   45   44   47   42   34   29   27   26   26   23   23   21   20   23   27   28   29   30   30   33.
27    28   28   27   29   29   30   26   30   28   25   24   23   23   23   24   23   24   27   30   35   43   47   50   54   31.
28    50   60   62   65   66                                               23    0   22   24   26   29   30   30   32   31   40.
29    29        31   34   34   35   35   34   29   22   20   19   19   19   18   18    0        19   21   22   23   23   24   25.
30    23   23   23   23   21   23   24   24   23   20    0   18   18   17   18   18   18   18   19   20   21   21   21   22   21.

MEAN  36.  42.  41.  42.  43.  40.  40.  41.  38.  30.  26.  24.  23.  24.  22.  23.  23.  23.  26.  29.  32.  33.  35.  35.

                   TOTAL NUMBER OF OBSERVATIONS =  1719   MEAN VALUE =   32.
```

FGPLT GOULD.VT



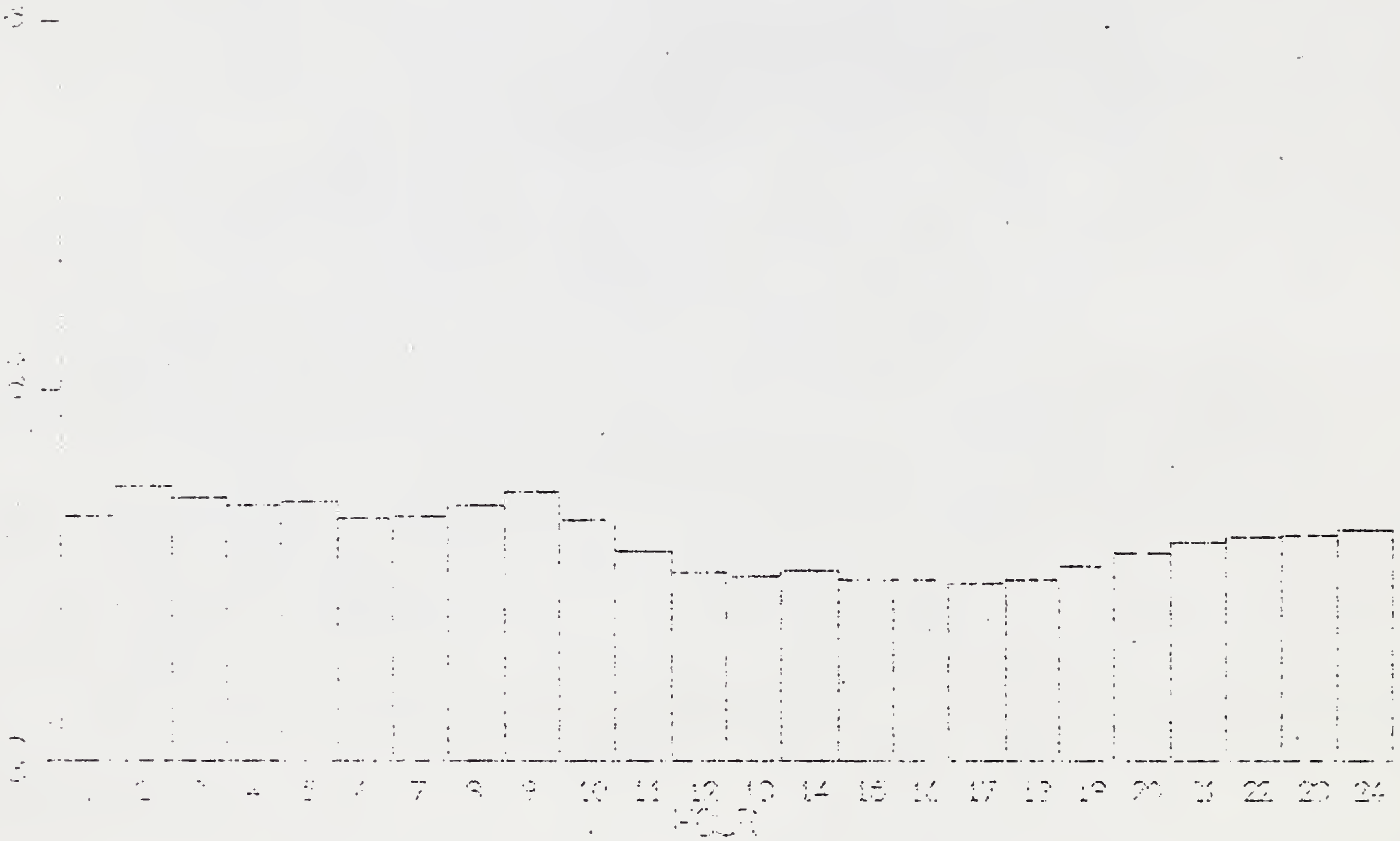
DIURNAL VARIATION OF RELATIVE HUMIDITY AT 30 FEET
SITE - 23

DIURNAL VARIATION OF RELATIVE HUMIDITY AT 30 FEET
TRAILER NO. - 23 PERIOD(9/ 1/74 TO 9/30/74)

	HOUR																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																									
18															27	27	27	27	26	28	31	33			28.
19									46	37	32	30	28	27		24	23	22							31.
20																									
21																									
22																									
23																									
24																									
25																29	28	27	28	30	33	34	35	35	32.
26	37	39	42	43	45	47	46	49	44	37	32	29	29	29	25	25	22	21	23	26	30	31	31	29	34.
27	28	27	27	28	28	28	27	28	26	25	23	23	23	24	25	24	25	29	32	35	42	46	54	53	31.
28	48	57	59	61	61										24		24	24	27	30	31	31	32	30	39.
29	30		27	29	30	31	31	29	27	23	21	20	20	20	20	19	20		21	22	23	24	24	24	25.
30	23	23	23	23	21	23	24	24	23	22		20	20	20	20	20	20	20	20	22	22	22	22	22	22.
MEAN	34.	37.	36.	37.	38.	33.	32.	33.	34.	29.	27.	25.	24.	24.	24.	24.	24.	25.	25.	29.	31.	32.	33.	33.	

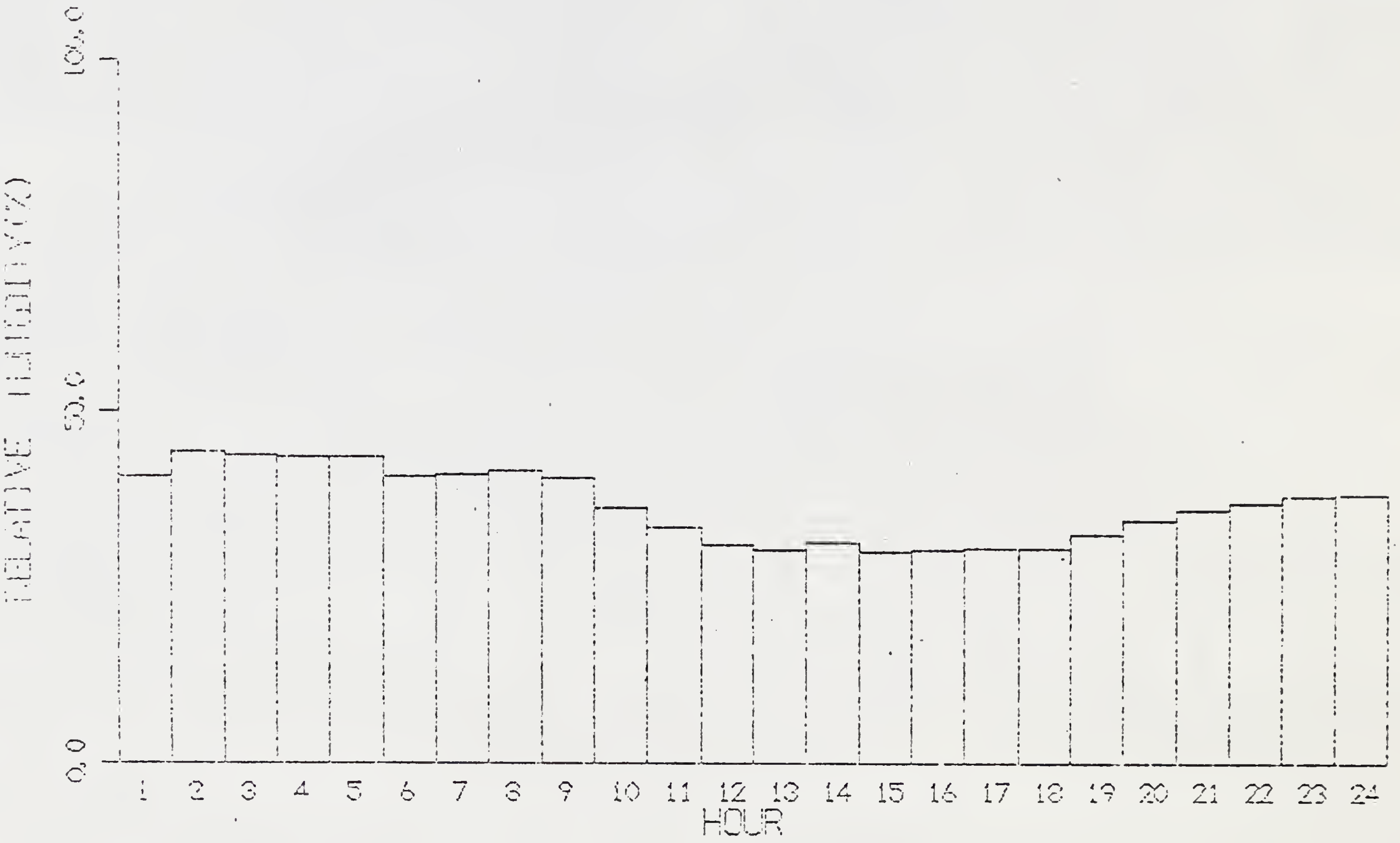
TOTAL NUMBER OF OBSERVATIONS = 1530 MEAN VALUE = 30.

GPLT GOULD.VT



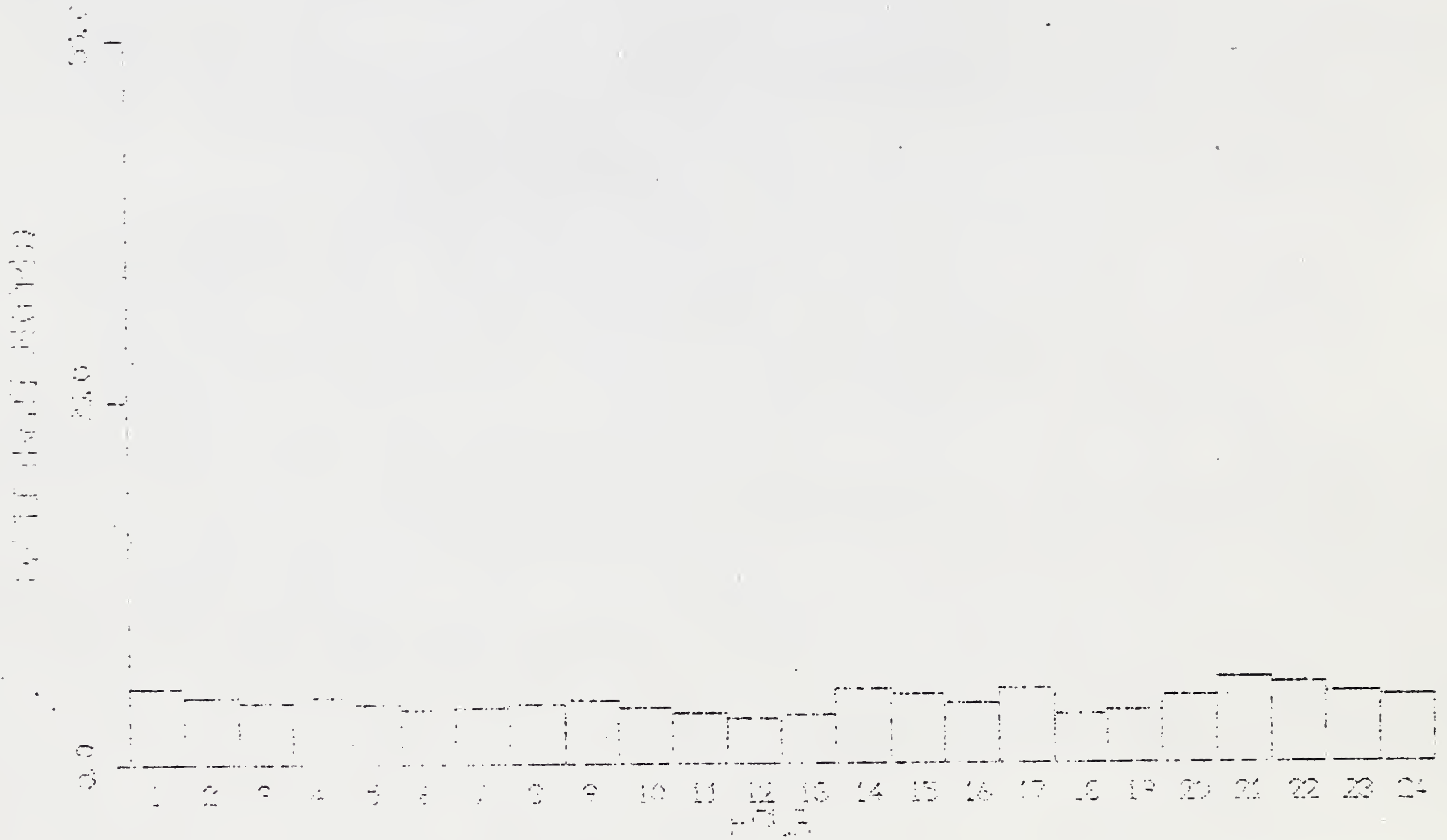
HOURLY VARIATION OF RELATIVE HUMIDITY AT 100 FEET
SITE [illegible]

```
                    DIURNAL VARIATION OF RELATIVE HUMIDITY AT 100 FEET
                    TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                          HOUR
       1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
AY

1
2
3
4
5
6
7                                                                                                30   32   34   39   38   41   36.
8     46   51   50   47   51   52   54   56   56   52                  33   29   29   28   28   26   28   29   31             41.
9                                             43   37   34   32   30   28        24   23   21                                31.
0
1
2
3
4
5                                                                               29   28   28   27   29   29   30   31   32   30.
6     33   35   36   37   38   39   38   41   41   37   34   32   31   30   25   25   21   20   22   27   28   26   27   25   32.
7     24   23   23   24   24   25   24   27   25   24   22   22   23   23   25   24   25   29   31   34   42   44   45   47   29.
8     43   52   52   52   51                                               26        24   25   27   29   29   27   27   26   30.
9     26        25   25   26   26   25   26   27   23   21   21   20   20   20   18   19        20   21   21   21   21   21   23.
0     21   21   20   20   18   20   21   21   23   21        19   19   19   19   19   19   19   20   20   20   20   20   20   20.

EAN   33.  37.  35.  34.  35.  33.  33.  35.  36.  33.  28.  26.  25.  26.  24.  25.  24.  24.  26.  28.  29.  30.  31.  31.

                    TOTAL NUMBER OF OBSERVATIONS =  1724    MEAN VALUE =   30.
```



DIURNAL VARAITON OF RELATIVE HUMIDITY AT 200 FEET
SITE - 23

```
                         DIURNAL VARAITON OF RELATIVE HUMIDITY AT 200 FEET
                          TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                HOUR
       1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
AY

1
2
3
4
5
6
7
8
9
0
1
2
3
4
5
5
7                                                                                              37   39   40   44   47   49   43.
8     53   57   57   56   58   60   63   64   57   52                  37   34   34   33   33   32   34   36   36             47.
9                                             47   38   37   36   34   33        30   29   27                                35.
0
1
2
3
4
5                                                                             35   33   33   33   34   35   36   37   36   35.
6     40   42   43   45   45   46   44   47   44   41   39   36   35   35   31   31   27   26   29   33   34   33   32   31   37.
7     31   30   30   30   30   32   31   34   32   31   29   29   28   30   31   30   31   35   36   42   50   53   55   58   36.
8     52   61   65   66   66                                              31        31   31   34   35   36   34   35   34   44.
9     34        33   35   35   35   35   33   33   29   28   27   26   26   26   24             27   28   26   28   29   29   31.
0     28   28   28   28   26   29   29   28   28   27        25   25   25   26   25   25   25   26   27   27   27   27   27   27.

EAN   41.  44.  44.  44.  43.  41.  41.  42.  41,  36.  34.  31.  30.  31.  30.  30.  30.  34.  32.  34.  36.  37.  36.  35.

                         TOTAL NUMBER OF OBSERVATIONS =  1724   MEAN VALUE =   36.

GPLT GOULD.VT
```

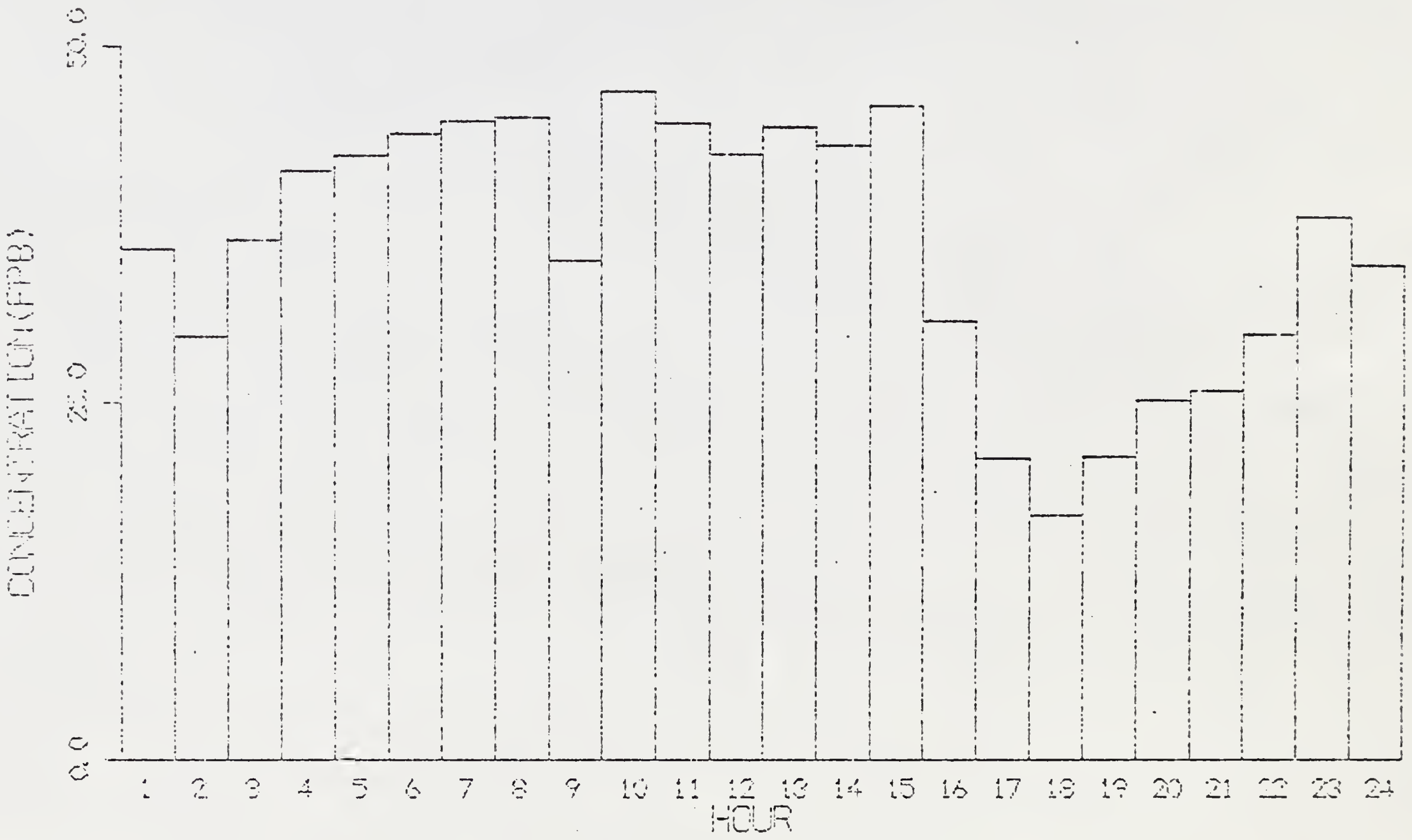


DIURNAL VARIATION OF NITROGEN OXIDES(PPB)
SITE - 2

DIURNAL VARIATION OF NITROGEN OXIDES(PPH)
TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

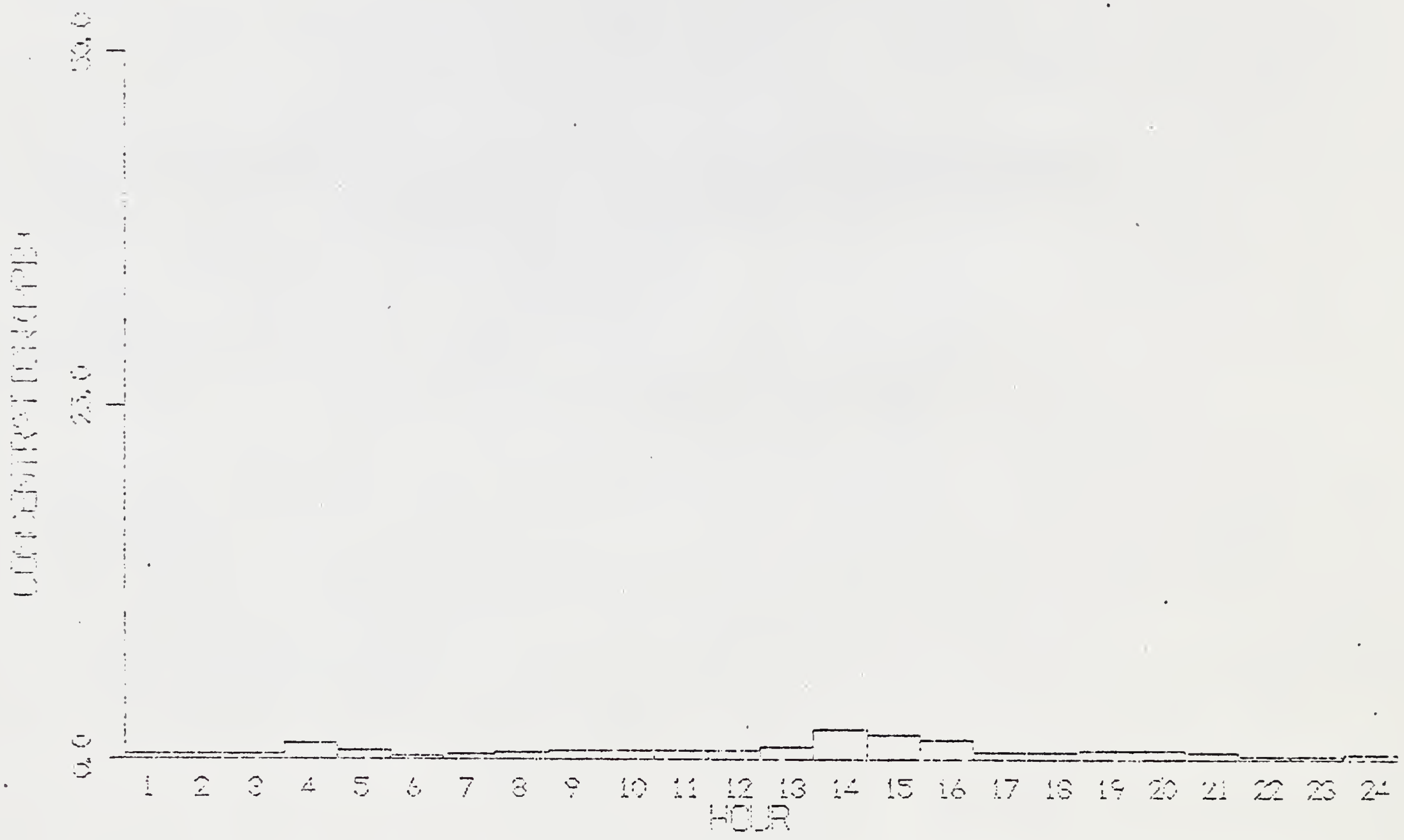
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
	HOUR																								
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																0	0	0	0	0	0	0	0	0	0.
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	0	0	0	0.
13	0	0	0	0	0	0	0	0	0	0	0		5	27	20	15	0	0	0	0	0	0	0	0	3.
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
16	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	2	3	2	3	3	3	3	2		1.
17	2	2	2	3	3	3	3	3	5	4	3		3	4	3	1	2	2	2	4	3	3	4	3	3.
18	3	3	2	21	7							0				3	4	4	5	5	7	5	6	4	5.
19	6	5	4	4	3	4	5	5	7	5	5	4	3	4	4	4	5	4	5	7	9	8	8	9	5.
20	9	7																							8.
21	9	9	8	5	6	9	5	7	7	4	5	6	5	4	5	6	6	5	6	7	12	10	6	5	7.
22	16	13	14	11	12	11	11	10	8	6	5	0													11.
23															4	4	5	5	6	9	15	17	13	9	9.
24	10	8	6	7	7	6	6	7	8	8	7	5	6	6	6	6	5	6	5	6	5	6	7	8	7.
25	7	6	6	6	7	6	6	6	7	6	6	6	7	5	6	6	5	5	6	5	15	17	8	5	8.
26	6	5	6	5	6	6	6	6	6	6	5	6	6	6	4	5	5	6	5	17	14	14	12	15	5.
27	12	9	6	10	5	5	7	8	12	7	7	3	4	5	5	3	3	6	4	4	6	7	10	6	7.
28	9	8	7	8	8	5	7	7	5	6	6	4	5	5	5	5	5	5	6	6	8	5	6	5	7.
29	5	6	6	5	5	4	4	6	5	5	5	5	5	5	5	5	3	4	5	5	5	5	5	3	5.
30	4	4	6	4	3	4	4	5	5	5	4	5	5	5	6	4	67	5	5	5	6	5	5	6	7.
MEAN	5.	5.	4.	5.	4.	4.	4.	4.	4.	4.	4.	3.	3.	5.	5.	4.	5.	3.	4.	5.	3.	5.	5.	5.	

TOTAL NUMBER OF OBSERVATIONS = 5313 MEAN VALUE = 4.



DIURNAL VARIATION OF NITROGEN OXIDES(PPB)
SITE - 23

```
                          DIURNAL VARIATION   NITROGEN OXIDES(PPB)
                        TRAILER NO. - 23  PER  D( 9/ 1/74 TO  9/30/74)

                                             HOUR
       1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
AY

1
2
3
4
5
6
7
8
9
0
1
2
3
4
5
6
7                                                                              0   0   0   0   0   0   0.
8      0   0   0   0   0   0   0   0   0   0               0   0   0   0   0   0   0   0   0           0.
9                                      0   0   0   0   0   0       0   0   0                           0.
0
1
2
3
4
5
6
7
8
9     69      50  62  71  71  72  72  74 117  82  79  87 102  80  70  47      32  47  47  48  51  48  59.
0     45  59  62  61  55  59  61  62  62  59  53  37  45  51  56  40  44  51  54  55  56  58  62  57  55.

EAN  35. 30. 36. 41. 42. 44. 45. 45. 35. 47. 45. 43. 44. 43. 46. 31. 21. 17. 21. 25. 26. 34. 38. 35.

                      TOTAL NUMBER OF OBSERVATIONS =   919   MEAN VALUE =   36.
```



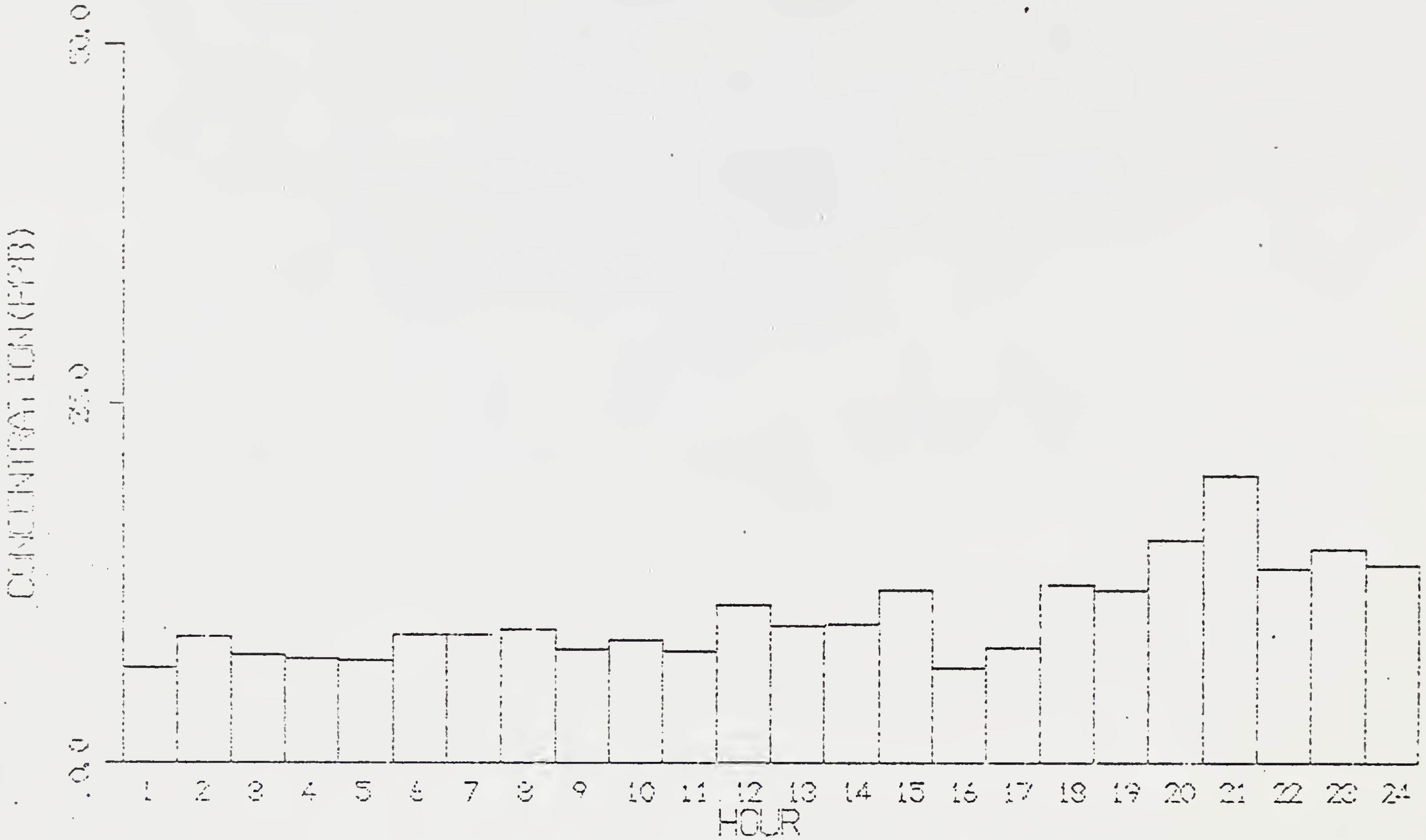
DIURNAL VARIATION OF NITRIC OXIDE(PPB)
SITE - 20

CORPORATION

DIURNAL VARIATION OF NITRIC OXIDE(PPB)
TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

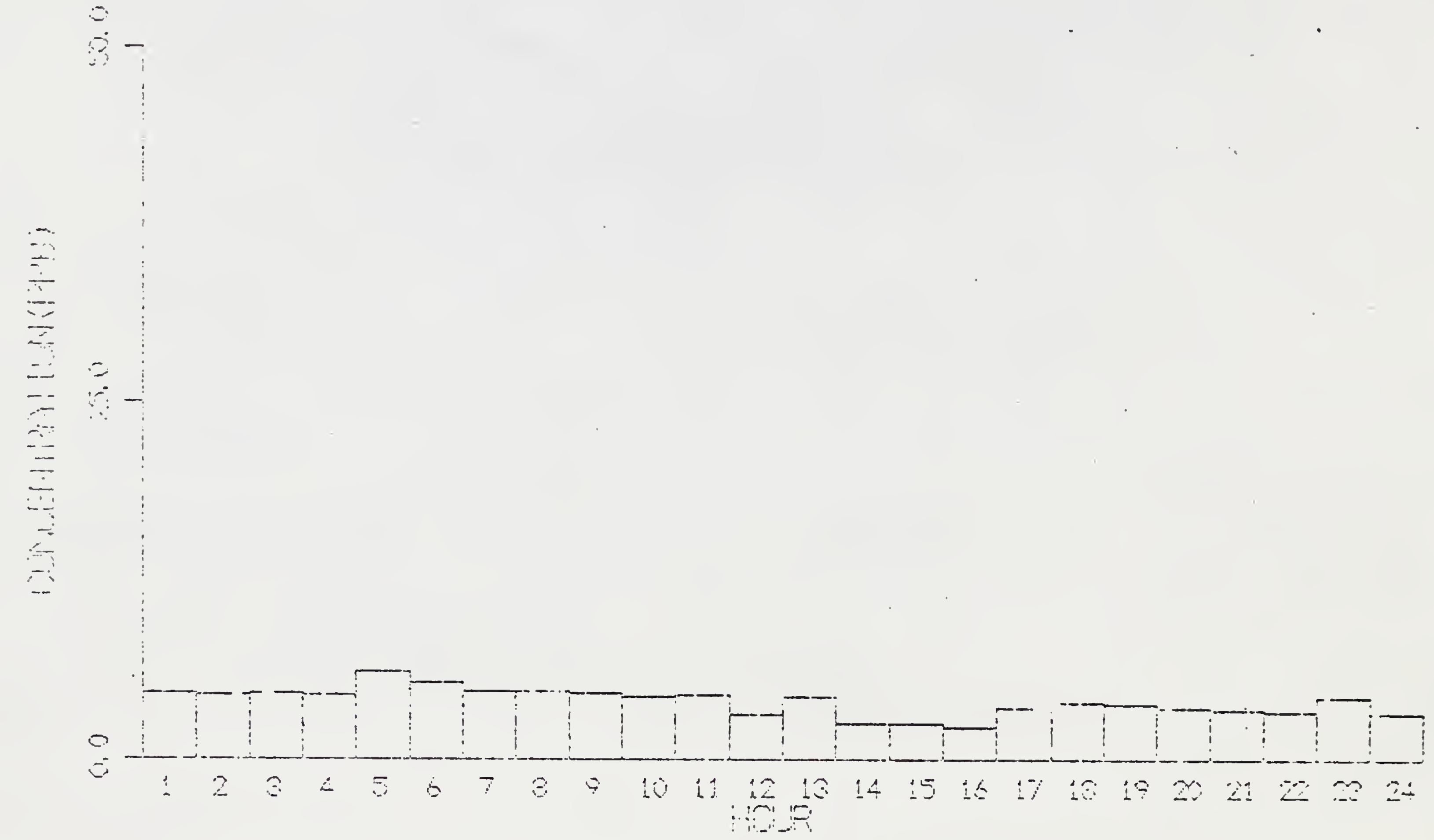
DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
9																0	0	0	0	0	0	0	0	0	0.
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	0	0	0	0.
13	0	0	0	0	0	0	0	0	0	0	0		2	22	20	15	0	0	0	0	0	0	0	0	3.
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
16	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1	1	1		1.
17	1	1	1	2	1	1	1	1	2	3	1		2	2	1	0	1	0	0	0	1	0	0	0	1.
18	0	0	0	20	7							0				1	0	0	0	0	0	0	0	0	2.
19	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	1	0	0	0	1.
20	0	0																							1.
21	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1.
22	1	0	0	0	0	0	0	0	1	0	0	0													0.
23															0	0	0	0	1	1	0	0	0	0	1.
24	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	0	0	0	1	1	0	0	0	1.
25	0	0	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1.
26	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	2	0	0	0	0	1.
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1.
28	1	1	0	0	0	0	1	1	2	1	0	0	1	1	1	1	0	1	1	0	0	0	0	0	1.
29	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	0	1	2	1	0	0	0	0	1.
30	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1.
MEAN	0.	0.	0.	1.	1.	0.	0.	0.	1.	1.	1.	1.	1.	2.	2.	1.	0.	0.	1.	1.	0.	0.	0.	0.	

TOTAL NUMBER OF OBSERVATIONS = 5526 MEAN VALUE = 1.



DIURNAL VARIATION OF NITRIC OXIDE(PPB)
SITE - 23

```
                        DIURNAL VARIATION OF NITRIC OXIDE(PPB)
                   TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                          HOUR
   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN

                                                                           0   0   0   0   0   0    0.
   0   0   0   0   0   0   0   0   0   0               0   0   0   0   0   0   0   0   0            0.
                                   0   0   0   0   0   0       0   0   0                            0.

                                                                   3   5  30  12   7  22   0   0   0    9.
   0   0   0   0   0   0   0   0   0   4  24  16   0   0   2   0   0   0   0   0   0   0   0   0    2.
   0   0   0   0   2   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
   0   0   0   0   0                                                  10   7   0  22  41   0   0   0    6.
   0       0   0   0   0   0   0   0   2   0   0   0   0   0   0   0      32  38  39  42  44  41   11.
  38  42  43  43  40  43  44  46  46  45  16  34  45  51  56  40  44  51  54  55  56  58  59  56   47.

AN  7.  9.  8.  7.  7.  9.  9.  9.  8.  9.  6. 11.  9. 10. 12.  7.  8. 12. 12. 16. 20. 14. 15. 14.

         TOTAL NUMBER OF OBSERVATIONS =  1742   MEAN VALUE =   11.
```

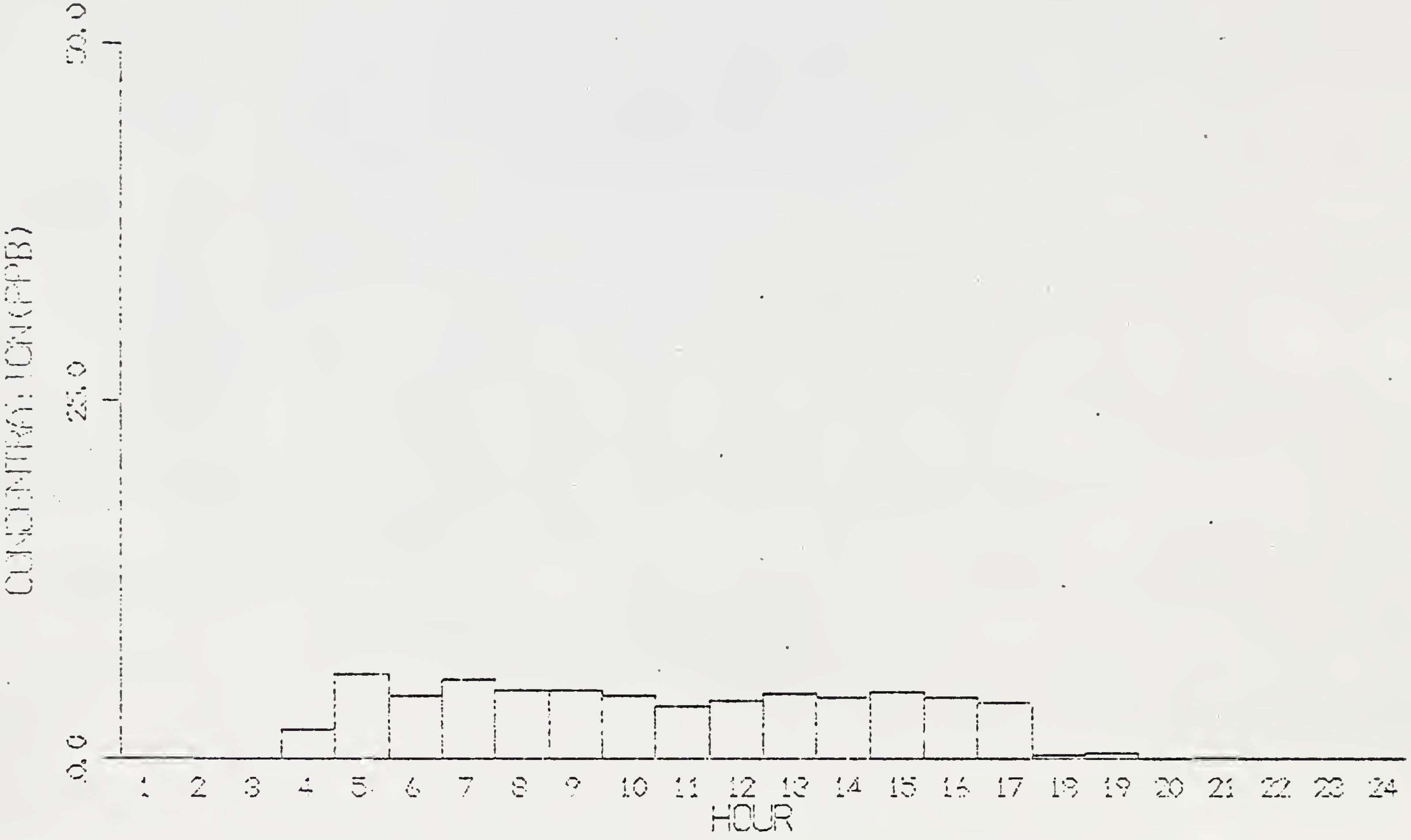


DIURNAL VARIATION OF SULFUR DIOXIDE(PPB)
SITE - 20

DIURNAL VARIATION OF SULFUR DIOXIDE(PPB)
TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
7	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0.
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
9	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0.
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	0	0	0	0.
13	0	0	0	0	0	0	0	0	0	0	0		0	0	27	19	0	0	0	0	0	0	0	0	2.
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	68	65	61	57	54	54	48	19.
15	46	45	44	42	44	41	41	40	40	39	39	39	39	38	39	39	38	39	39	38	39	40	40	40	41.
16	38	39	39	39	40	39	40	40	38	38	38	37	33	0	0	0	0	0	0	0	0	0	25		23.
17	45	44	44	43	46	51	52	51	51	45	46		37	26	0	0	0	0	0	0	0	0	0	0	25.
18	0	0	0	0	41	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
20	0	0																							0.
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
22	0	0	0	0	0	0	0	0	0	0	0	0													0.
23															0	0	0	0	0	0	0	0	0	0	0.
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
MEAN	5.	4.	5.	5.	6.	5.	5.	5.	5.	4.	4.	3.	4.	3.	2.	2.	4.	4.	4.	4.	4.	3.	4.	3.	

TOTAL NUMBER OF OBSERVATIONS = 7874 MEAN VALUE = 4.



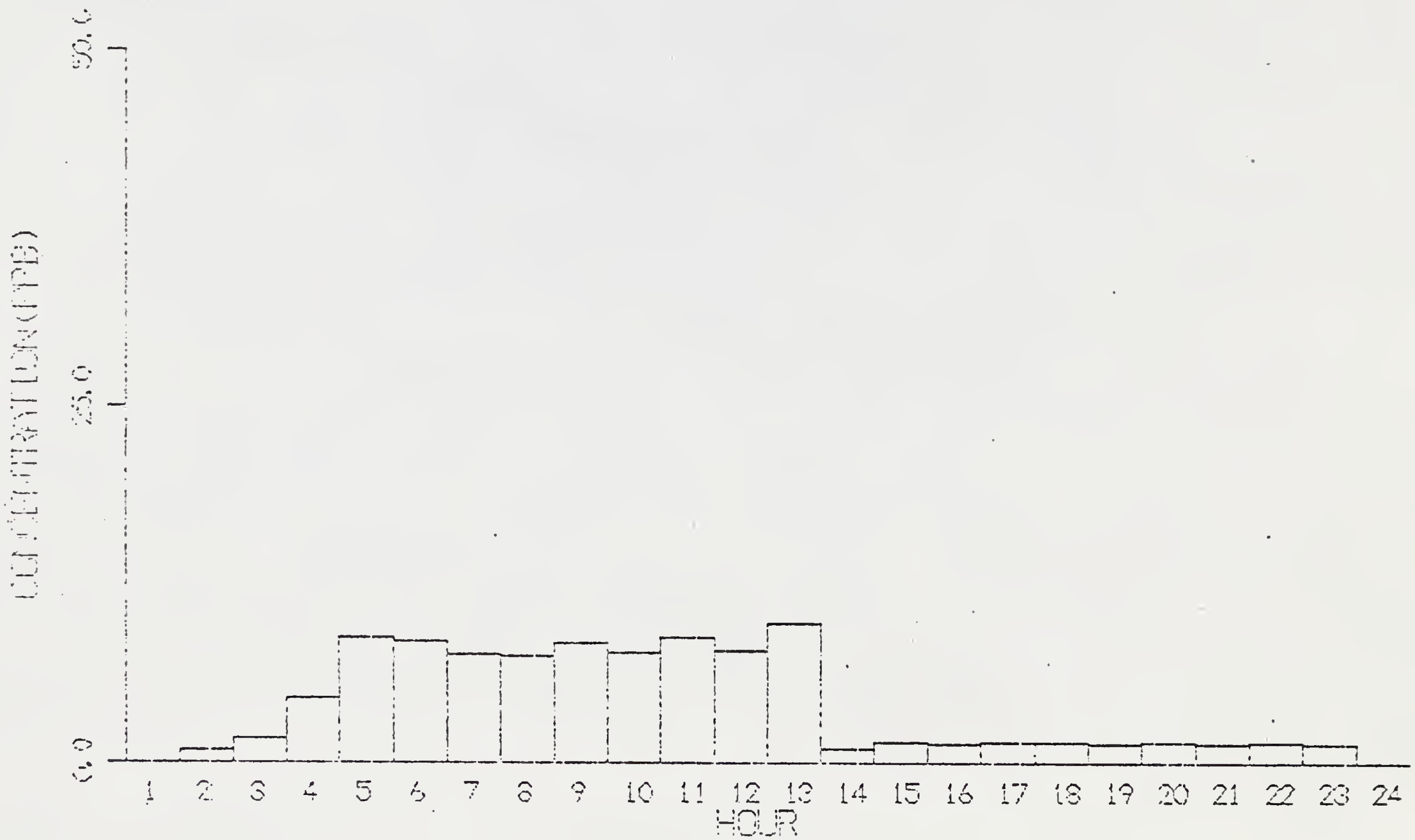
DIURNAL VARIATION OF SULFUR DIOXIDE(PPB)
SITE - 21

CORPORATION

DIURNAL VARIATION OF SULFUR DIOXIDE(PPB)
TRAILER NO. - 21 PERIOD(9/ 1/74 TO 9/30/74)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
6	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0.
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0.
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0.
10	0	0	0	52	71	47	55	46	38	36	11			0	0		0	0	0	0	0	0	0	0	17.
11	0	0	0	24	86	68	90	79	90	80	84	97	102	109	111	103	105	0	14					0	62.
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0.
14	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0.
15	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0.
16	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0.
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0.
27																									
28																									
29																0	0	0	0	0	0	0	0	0	0.
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0.
MEAN	0.	0.	0.	2.	5.	4.	5.	5.	5.	4.	4.	4.	5.	4.	5.	4.	4.	0.	0.	0.	0.	0.	0.	0.	

TOTAL NUMBER OF OBSERVATIONS = 7620 MEAN VALUE = 3.

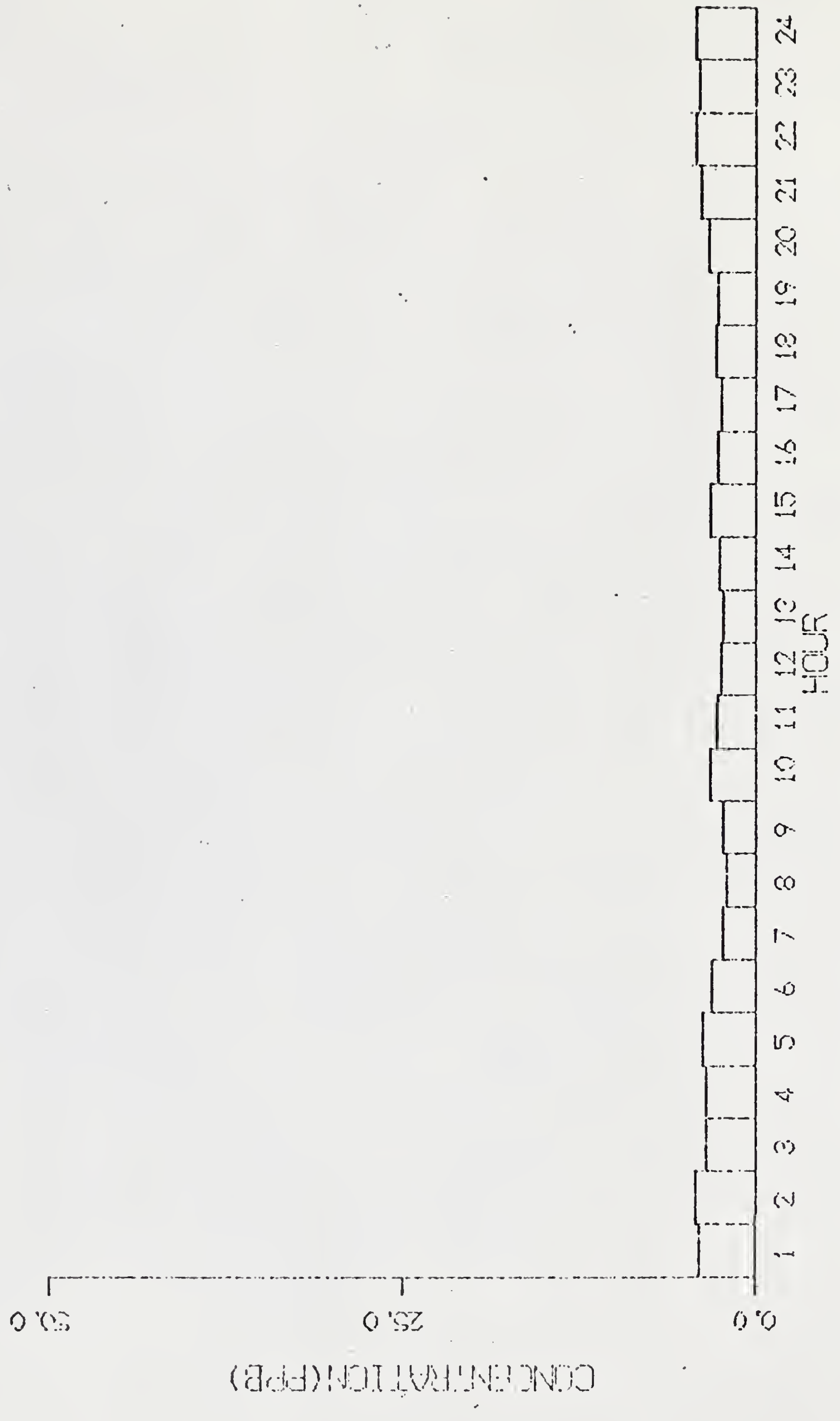


DIURNAL VARIATION OF SULFUR DIOXIDE(PPB)
SITE - 22

DIURNAL VARIATION OF SULFUR DIOXIDE(PPB)
TRAILER NO. - 22 PERIOD(9/ 1/74 TO 9/30/74)

	HOUR																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
5	0	0	0	0																					0.
6																									
7																									
8																									
9																									
10																									
11														0	0	0	0	0	0	0	0	0	0		0.
12																						0	0	0	0.
13													24	0	0	0	0	0	0	0	0	0	0	0	2.
14	0	0	0	4	17	17	19	10	18	19	21	17	41	6	18	18	20	19	16	18	18	21	16	0	15.
15	0	3	19	0	19	21	21	22	24	21	24	24	22	0	0	0								0	15.
16												0	0												0.
17											15		18	13	13	11	10	10	11	12	11	11	11	0	12.
18	0	14	14	13	13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
30	0	0	0	112	115	108	106	109	116	105	114	105	116			0	1	1	1	0	0	0	0	0	54.
MEAN	0.	1.	2.	4.	9.	9.	8.	8.	8.	8.	9.	8.	10.	1.	2.	1.	2.	1.	1.	1.	1.	2.	1.	0.	

TOTAL NUMBER OF OBSERVATIONS = 5784 MEAN VALUE = 4.

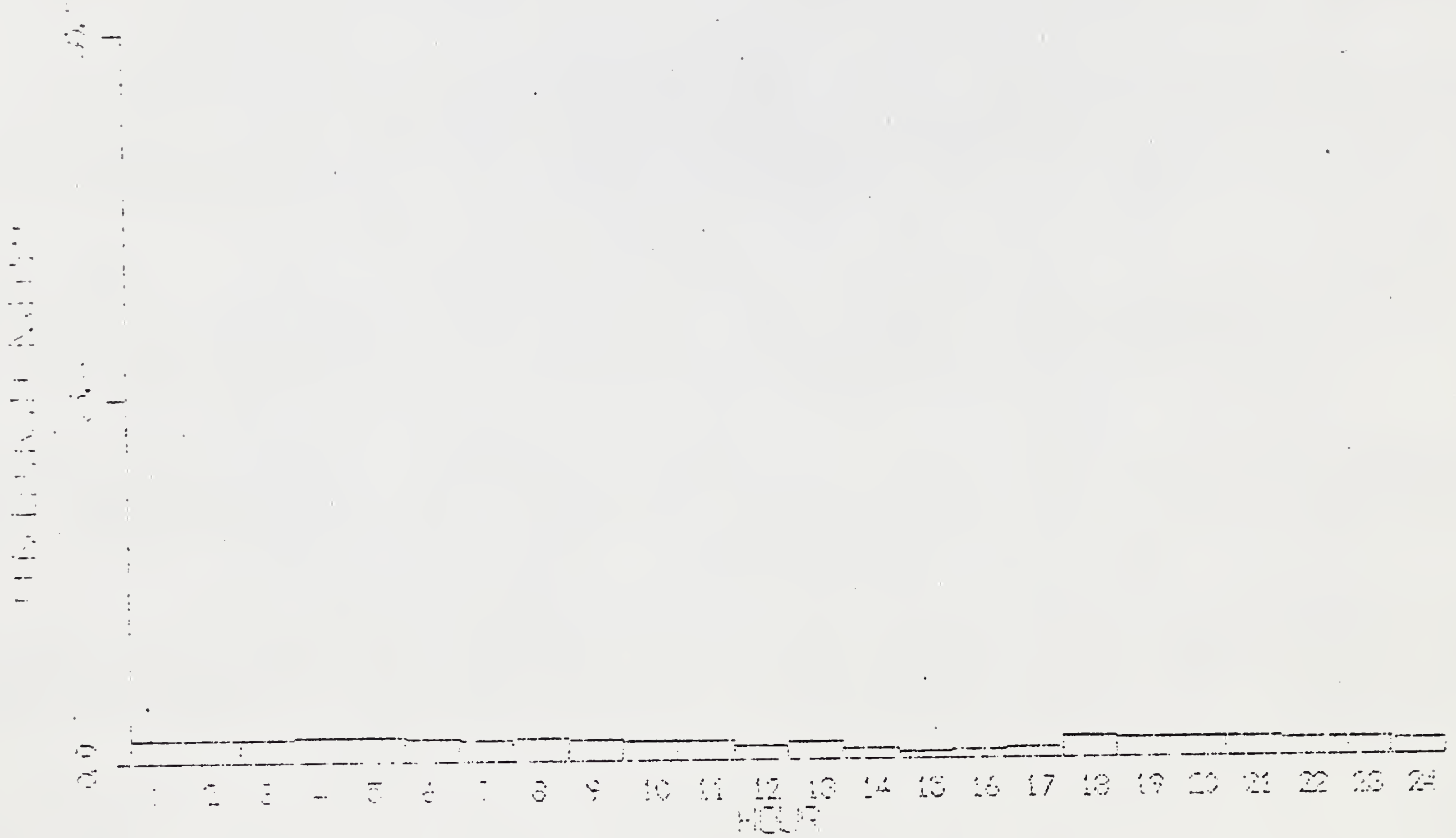


DIURNAL VARIATION OF SULFUR DIOXIDE(PPB)
SITE - 23

DIURNAL VARIATION OF SULFUR DIOXIDE(PPB)
TRAILER NO. - 23 PERIOD(9/ 1/74 TO 9/30/74)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																			0	0	1	0	1	0	1.
18	0	0	0	0	0	0	0	0	0	0				0	1	0	1	1	1	0	1	1			1.
19									1	1	0	1	1	3		1	0	0							1.
20																									
21																									
22																									
23																									
24																									
25																5	7	8	6	7	8	5	7	7	7.
26	6	6	4	5	5	5	4	4	5	7	8	6	5	6	6	5	4	4	3	4	5	5	4	5	6.
27	5	4	4	4	5	4	3	1	1	2	1	1	2	1	2	2	2	2	2	3	3	5	4	4	3.
28	3	4	4	5	4										7	4	2	1	1	4	8	7	4	6	5.
29	4		2	2	2	2	2	2	3	5	2	1	2	4	3	3	0		6	3	1	4	2	2	3.
30	3	5	3	3	4	2	1	1	1	0	0	1	0	0	0	0	0	1	0	1	2	1	3	3	2.
MEAN	4.	4.	3.	4.	4.	3.	2.	2.	2.	3.	3.	3.	2.	3.	3.	3.	2.	3.	3.	3.	4.	4.	4.	4.	

TOTAL NUMBER OF OBSERVATIONS = 1753 MEAN VALUE = 3.



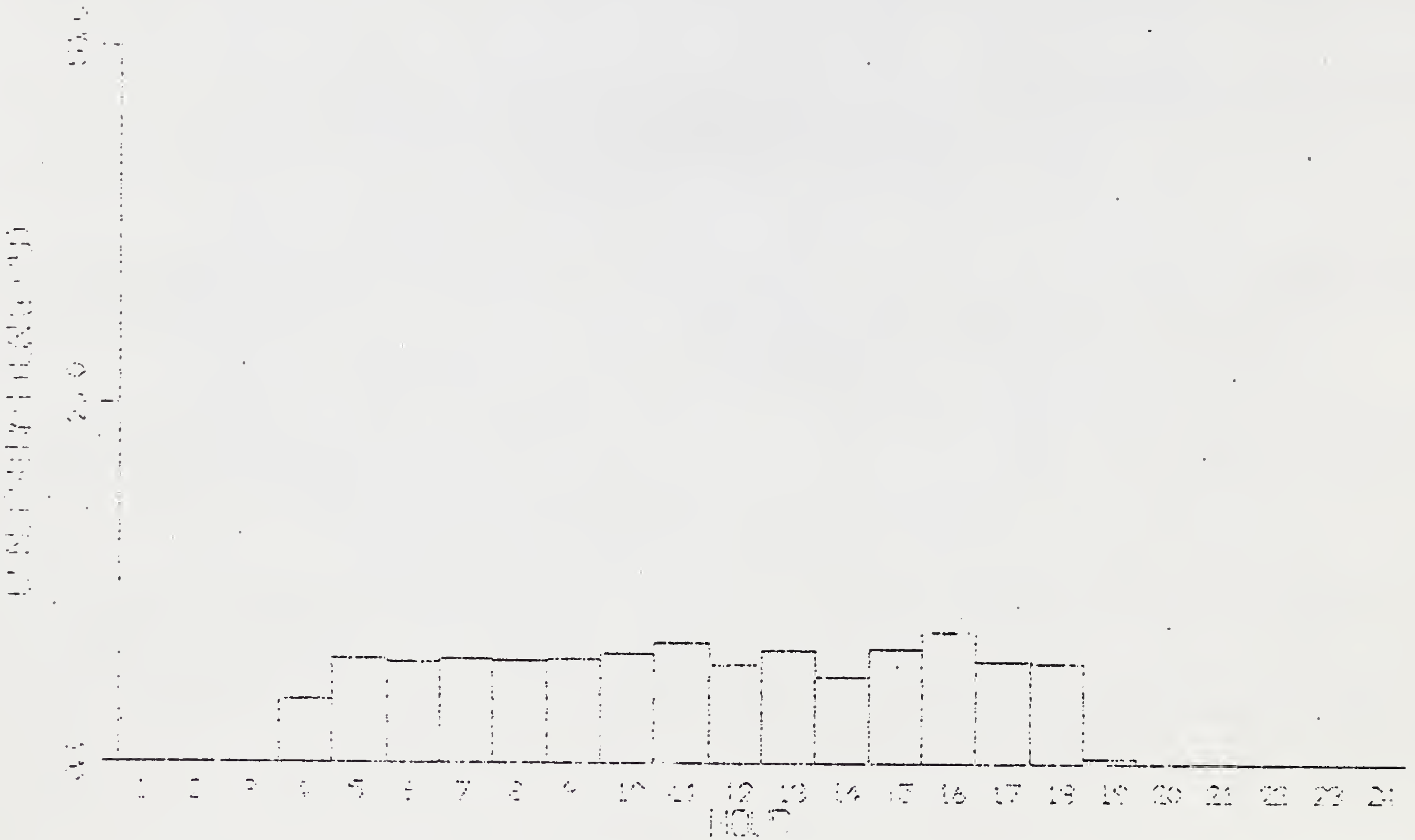
DIURNAL VARIATION OF HYDROGEN SULFIDE(PPB)
SITE - 20

CORPORATION

DIURNAL VARIATION HYDROGEN SULFIDE(PPB)
TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
7	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0.
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
9	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0.
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	0	0	0	0.
13	2	0	0	1	0	1	1	1	0	0	0		0	0	0	4	0	0	0	0	0	0	0	0	1.
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	26	25	24	22	20	19	17	7.
15	17	16	16	15	16	14	13	13	13	13	12	12	11	12	11	12	11	11	11	12	13	12	12	12	13.
16	11	11	11	12	11	11	10	12	12	12	11	11	10	0	0	0	0	0	0	0	0	0	1		7.
17	13	16	16	17	17	15	16	16	15	13	12		8	6	0	0	0	0	0	0	0	0	0	0	0.
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
20	0	0																							0.
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
22	0	0	0	0	0	0	0	0	0	0	0	0													0.
23															0	0	0	0	0	0	0	0	0	0	0.
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
MEAN	2.	2.	2.	2.	2.	2.	2.	2.	1.	1.	1.	1.	1.	1.	0.	1.	1.	1.	1.	1.	1.	1.	1.	1.	

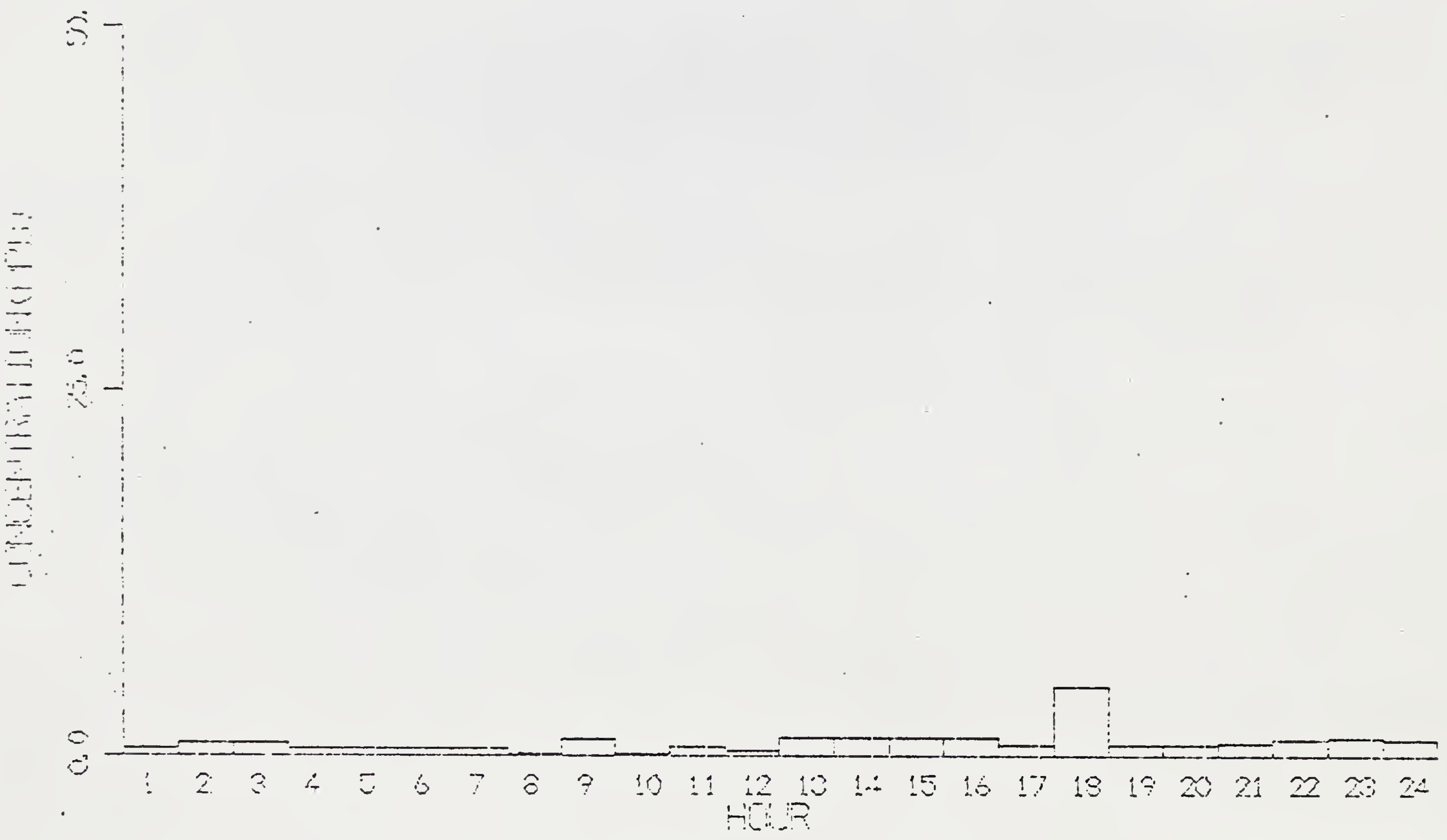
TOTAL NUMBER OF OBSERVATIONS = 7889 MEAN VALUE = 1.



DIURNAL VARIATION OF HYDROGEN SULFIDE
SITE [illegible] 21

CORPORATION

```
                    DIURNAL VARIATION O[illegible]YDROGEN SULFIDE(PPB)
                   TRAILER NO. - 21  PERIOD( 9/ 1/74 TO  9/30/74)

                                         HOUR
       1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24 MEAN
AY

1
2
3
4
5
6
7
8
9
0                                                      0   0       0   0   0   0   0   0   0   0    0.
1      0   0   0 114 109 115 116 119 120 117 115 105 107 107 109 107  97   0   9                   0   83.
2      0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    4.
3      0   0   0   0   0   0   0   0   0   0   0   0   0   0           0   0   0   0   0   0   0   0    0.
4      0   0   0   0   0   0   0   0   0   0   0   0       0   0   0   0   0   0   0   0   0   0   0    0.
5      0   0   0   0   0   0   0   0   0   0   0   0       0   0   0   0   0   0   0   0   0   0   0    0.
6      0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
7      0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
8      0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
9      0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
20     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
21     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
22     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
23     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
24     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
25     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0    0.
26     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0        0.
27
28
29                                                             0   0   0   0   0   0   0   0   0    0.
30     0   0   0   6  12   1   7   0   1  11  27   5   9   0  24  45  36 208   0   0   0   0   0   0   14.

EAN   0.  0.  0.  4.  7.  7.  7.  7.  7.  8.  8.  7.  3.  6.  8.  9.  7.  7.  0.  0.  0.  0.  0.  0.

                   TOTAL NUMBER OF OBSERVATIONS =  4947   MEAN VALUE =    4.
```



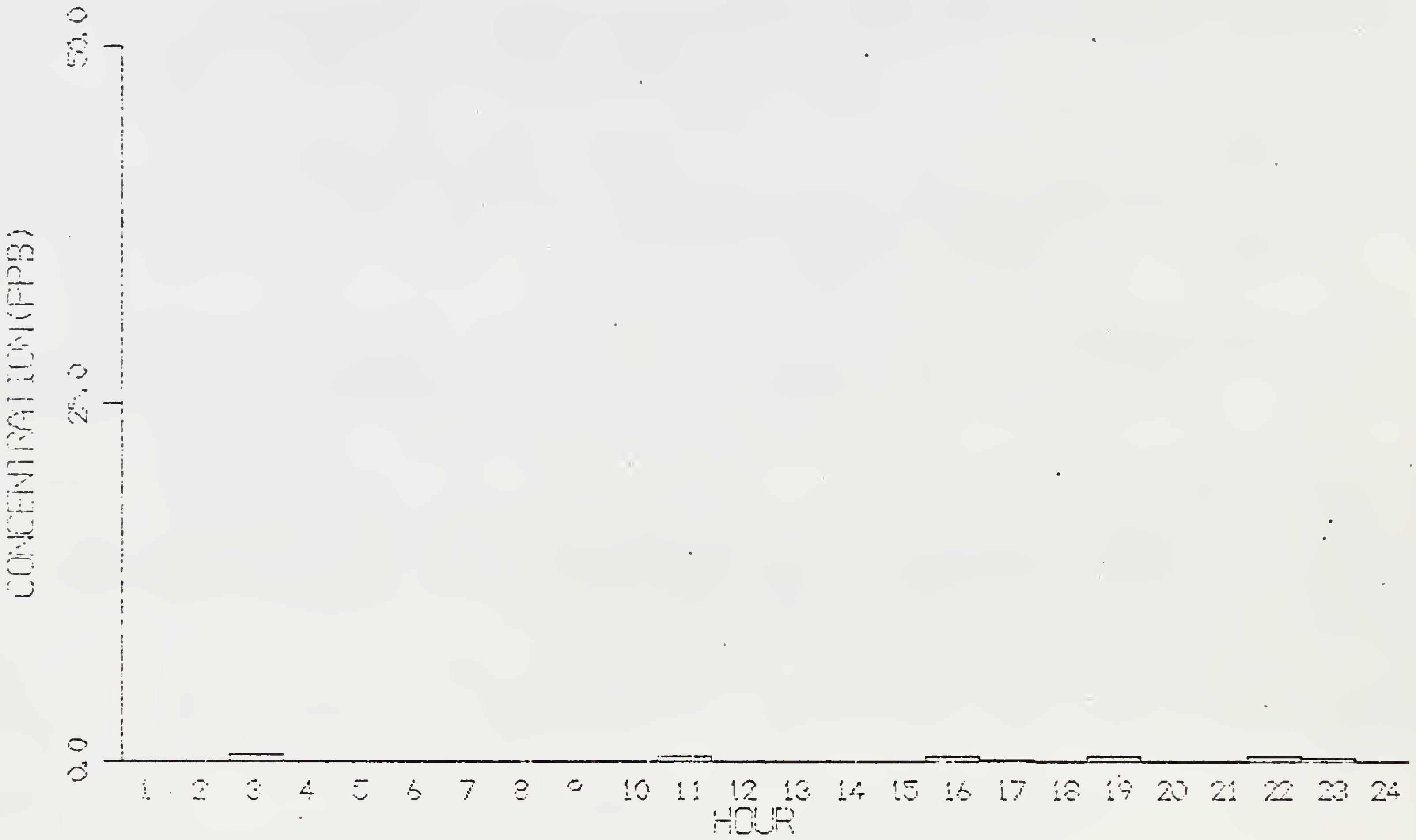
DIURNAL VARIATION OF HYDROGEN SULFIDE(PPB)
SITE - 22

DIURNAL VARIATION OF HYDROGEN SULFIDE(PPB)
TRAILER NO. - 22 PERIOD(9/ 1/74 TO 9/30/74)

HOUR

AY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0.
4	2	2	2	2	2	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1.
5	2	2	2	2																					2.
6																									
7																									
8																									
9																									
10																									
11														5	5	5	5	5	5	5	5	5	5		5.
12																						7	7	12	9.
13													6	5	5	5	5	5	5	5	5	5	5	5	5.
14	5	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.
15	0	0	0	0	0	0	0	0	0	0	0	0	3	5	6	6								0	2.
16												0	5												3.
17											4		4	4	4	4	4	4	4	3	5	4	4	0	4.
18	0	5	6	6	6	6	7	0	0	0	8	6	5	6	5	4	0	0	0	0	0	0	0	0	3.
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
25	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	63	0	0	0	0	0	0	4.
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
30	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0.
MEAN	1.	1.	1.	1.	0.	0.	1.	0.	1.	0.	1.	0.	1.	1.	1.	1.	1.	5.	1.	1.	1.	1.	1.	1.	

TOTAL NUMBER OF OBSERVATIONS = 5783 MEAN VALUE = 1.

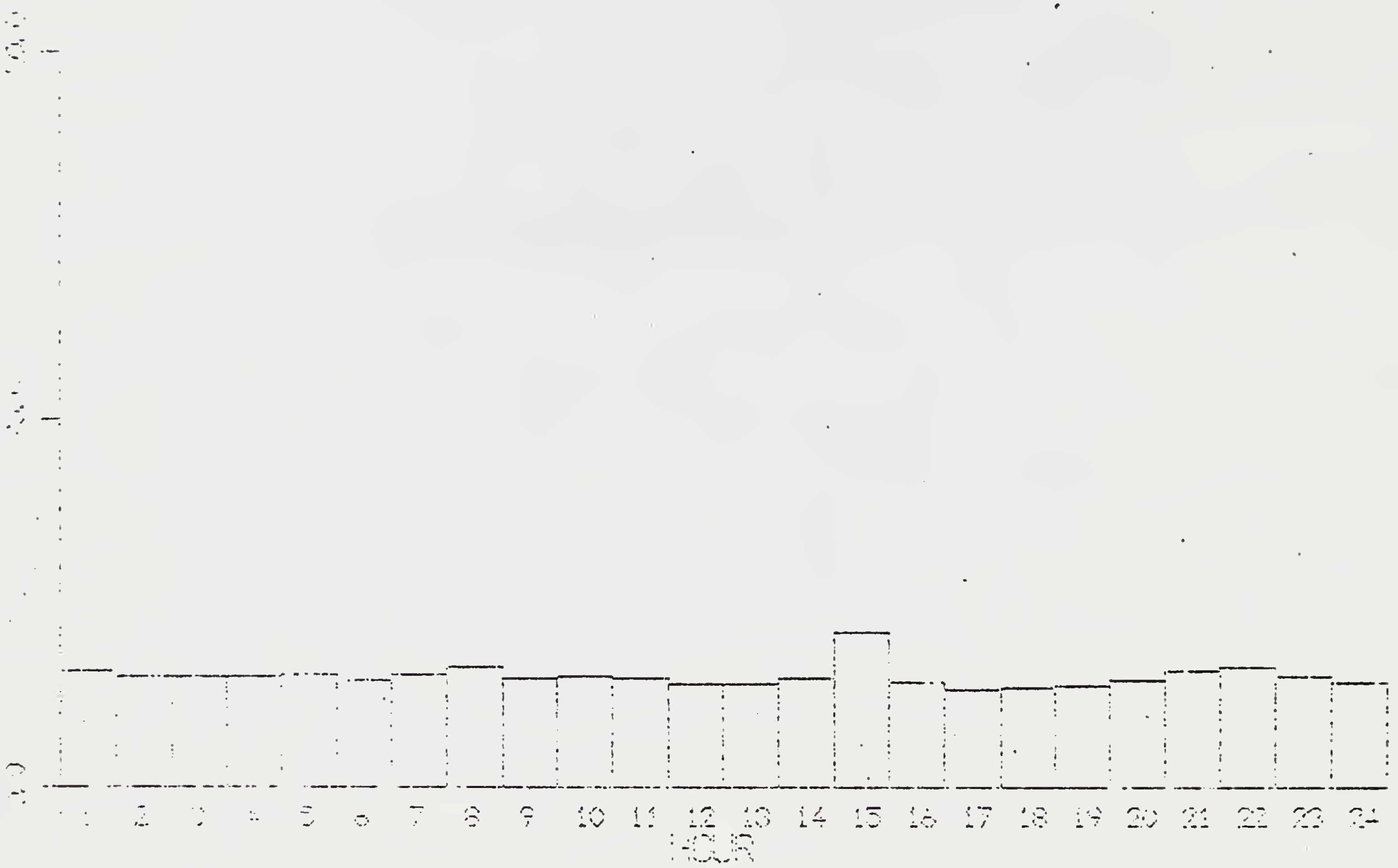


DIURNAL VARIATION OF HYDROGEN SULFIDE(PPB)
SITE - 23

DIURNAL VARIATION HYDROGEN SULFIDE(PPB)
TRAILER NO. - 23 PERIOD(9/ 1/74 TO 9/30/74)

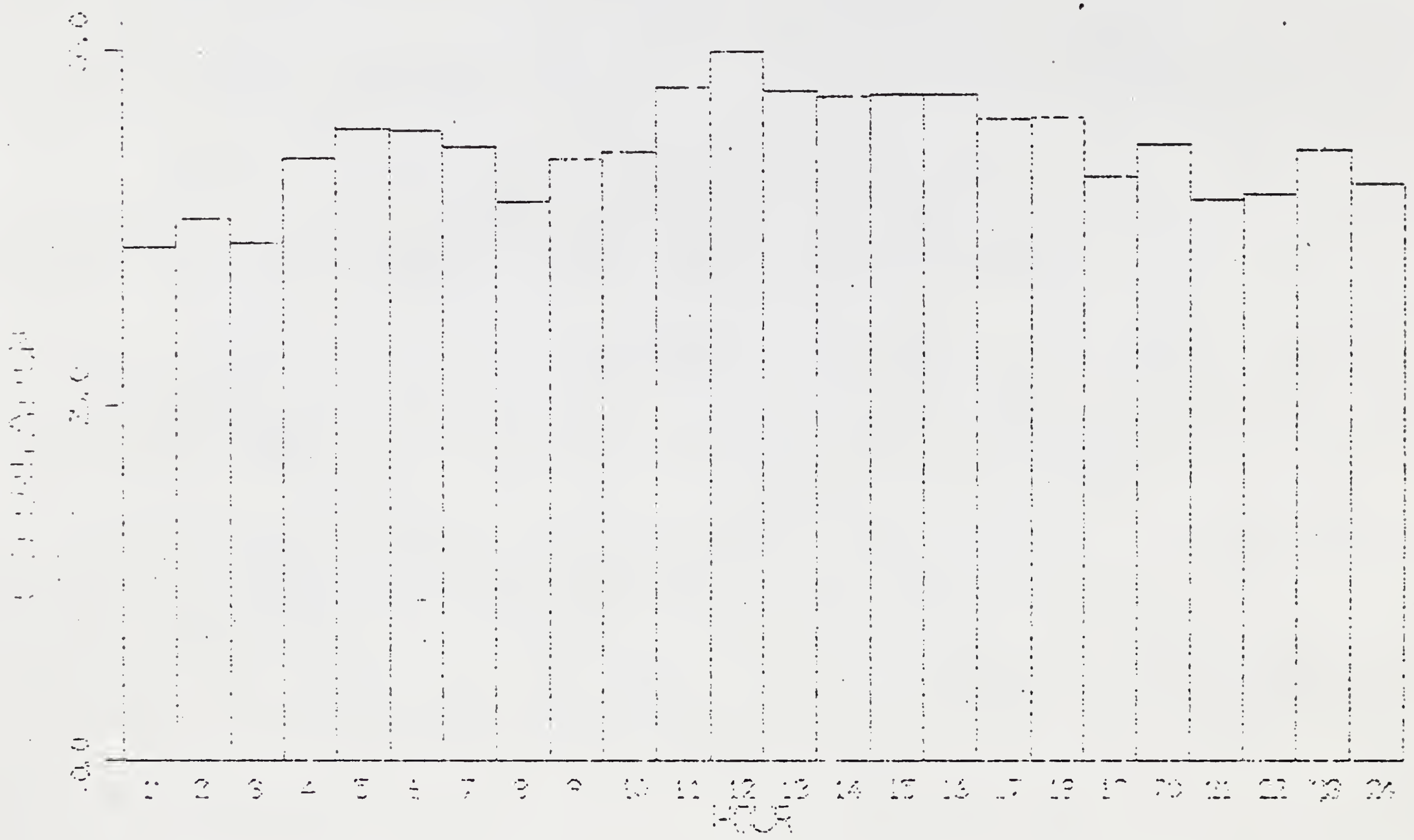
DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																			0	0	0	0	0	0	0.
18	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0			0.
19									0	0	0	0	0	0		0	0	0							0.
20																									
21																									
22																									
23																									
24																									
25																0	0	0	0	0	0	0	0	0	0.
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
28	0	0	0	0	0										0	0	0	0	0	0	0	2	1	0	0.
29	0		3	0	0	0	0	0	0	0	0	0	0	0	0	2	0		0	0	0	0	0	0	0.
30	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0.
MEAN	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	

TOTAL NUMBER OF OBSERVATIONS = 1752 MEAN VALUE = 0.



DIURNAL VARIATION OF TOTAL HYDROCARBONS(PPB X 10**-2)
SITE - 20

```
+                 DIURNAL VARIATION OF TO  L HYDROCARBONS(PPB X 10**-2)
                    TRAILER NO. - 20  PE  IOD( 9/ 1/74 TO  9/30/74)

                                          HOUR
        1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
DAY

 1
 2
 3
 4
 5
 6
 7
 8
 9                                                              27                                     27.
10
11
12
13     10  10  10  10  10  10  10  10  10  10  10              10  20   7                              11.
14
15
16
17
18          7   7       0   2      11   3   7           7   7   7   7   7                               7.
19
20
21      7   7   7   7   7   7   7   7   7   7   7   6   7   7   6   6   6   6   6   7   7   7   7   7   7.
22      7   7   7   7   7   7   7   7   7   7   7   0                                                   7.
23                                                                          7   7   8   8   7   7   8.
24      8   7   7   7   7   7   7   7   8   7   7   7   7   7   7   7                           7   7   7.
25      7   7   7   7   7   7   7   7   7   7   7   7   7   6   6   7   6   6   6   6   8   9   7   7   7.
26      7   7   7   7   7   7   7   7   7   7   7   7   7   7                                           7.
27      8   7   7   7   7   7   7   7   7   7   7   7   6   7   7   7   7   7   7   7   7   8   7   7   7.
28      7   7   7   7   8   7   7   7   7   7   7   7   6   7   7   7   6   7   7   7   7   7   7   6   7.
29
30

MEAN   8.  8.  8.  8.  8.  7.  8.  8.  7.  7.  7.  7.  7.  7. 10.  7.  7.  7.  7.  7.  8.  8.  7.  7.

              TOTAL NUMBER OF OBSERVATIONS =  2032   MEAN VALUE =    8.
```



DIURNAL VARIATION OF TOTAL HYDROCARBONS(PPB X 10**-2)
SITE - 03

CORPORATION

```
    +                      DIURNAL VARIATION OF TOTAL HYDROCARBONS(PPB X 10**-2)
                             TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                 HOUR
       1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

 1
 2
 3
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11
12
13
14
15
16
17
18
19
20
21
22
23
24
25                                                                     47    0                                               48.
26
27
28                                                                44    0   42   41   44   43   38   38   39   40   41.
29    34        31   40   44   42   44   40   43   43   45   49   47   45   46   45   44        37   44   37   41   45   39   43.
30    37   38   40   44   44   46   41   38   40   42   50   50   46   47   48   46   47   48   41   45   42   38   43   41   44.

MEAN  36.  38.  36.  42.  44.  44.  43.  39.  42.  43.  47.  50.  47.  47.  47.  47.  45.  45.  41.  43.  39.  41.  43.  40.

                      TOTAL NUMBER OF OBSERVATIONS =    645   MEAN VALUE =    43.
```
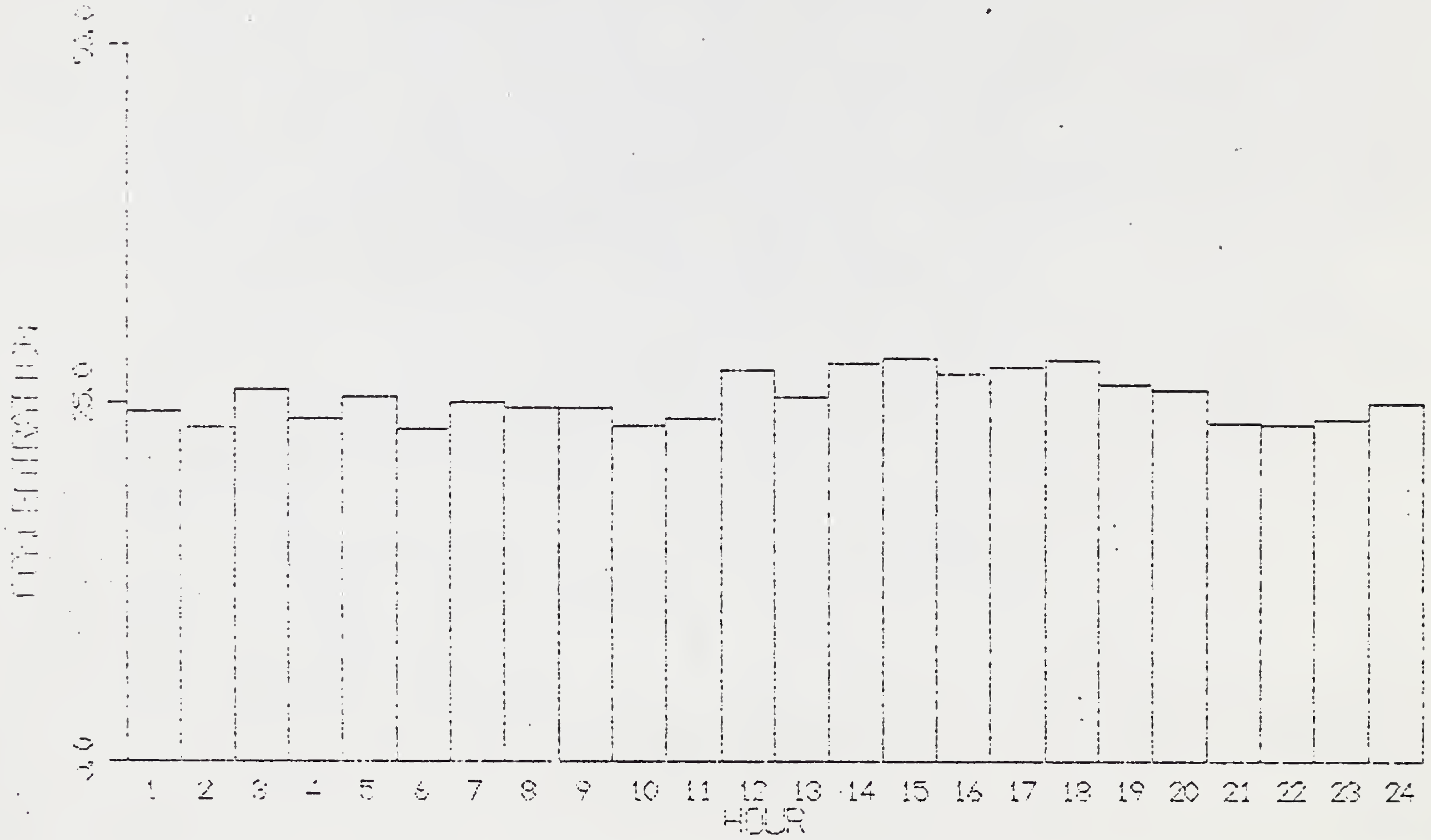

!GPLT GOULD,VT



DIURNAL VARIATION OF METHANE(PPB X .10**-2)
SITE - 20

```
                    DIURNAL VARIATION OF METHANE(PPB X 10**-2)
                    TRAILER NO. - 20  PERIOD( 9/ 1/74 TO  9/30/74)

                                         HOUR
      1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  MEAN
DAY

 1   28  18  27   0      20  25   0  23  27  27  31  24  26  26  18  26  23  22  21  19  21  23  23   24.
 2   25  23  25   0   0           0   0  21  19  23  24  24  23  27  27  28  31  29  31  30  21  23  24   25.
 3       26   0  20  29  27      24  19  24   0   0  26  24  25  24  25  29  23  25  25  25  23  26   23.
 4   25  30   0   0   0  25               0  22   0   0  31  30  30  30  25  26  31  22  22  26  22  26   27.
 5   28  27  28  32  26  29  33  27   0  24   0  28  27  24  25  25  24  24  23  19  22  23  22  32   25.
 6   25  25  31  22  23   0  21      25  21   0  28  33  31  33  32  29  26  27  27  23  22  21  23   27.
 7   22  23  25  24  27  20  25  28  35  30  33  33      30  35  27  34  33  28  29  23  24  27  24   29.
 8   28  24  28  30  28  22  29  28  28  21  19      21  32  25   0  23  24  22  27  21  22  22  22   23.
 9   22  19  27  21  29  27  28  27  26  25  21  30      21  15                                       25.
10   15  15  15  15  15  15  15  15  15  15  15  15  15                                               15.
11
12
13
14
15
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19
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28
29
30

MEAN  24. 23. 26. 24. 25. 23. 25. 25. 25. 23. 24. 27. 25. 28. 28. 27. 28. 26. 26. 25. 24. 23. 24. 25.

                  TOTAL NUMBER OF OBSERVATIONS =  1766   MEAN VALUE =   25.
```

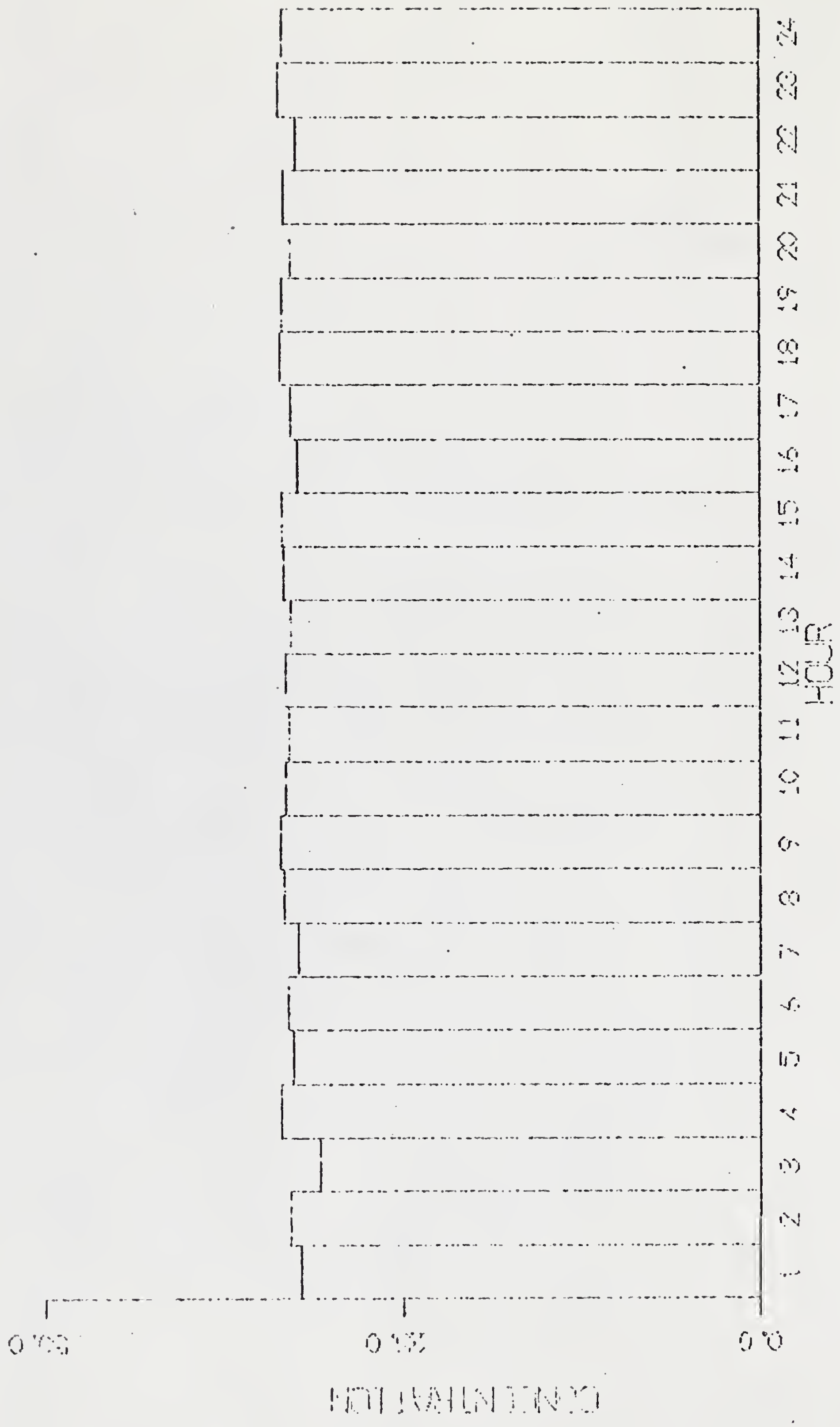

DIURNAL VARIATION OF METHANE(PPB X 10**-2)
SITE - 23

```
                    DIURNAL VARIATION OF METHANE(PPB X 10**-2)
                 TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                         HOUR
         1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

 1
 2
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16
17
18
19
20
21
22
23
24
25                                                                          31    0   32   33   31   33   32   33   32   33.
26      33   32   31   32   32   32   32   31   33   32   31   31   31   32   32   31   32   32   32   31   31   30   31   31   32.
27      31   30   29   32   31   31   29   32   31   31   31   32   31   32   32   32   30   32   32   32   32   32   33   32   32.
28      30   33   33   34   34                                                32    0   33   35   34   33   33   29   34   35   33.
29      30        22   34   35   33   32   34   34   34   34   33   34   34   34   31   33        32   32   32   33   33   34   33.
30      34   35   33   33   29   34   34   35   34   34   34   35   33   34   34   34   33   35   35   34   35   35   34   35   34.

MEAN    32,  33.  31.  34.  33.  33.  32.  33.  33.  33.  33.  33.  33.  33.  33.  32.  33.  34.  33.  33.  33.  32.  34.  33.

                         TOTAL NUMBER OF OBSERVATIONS =  1340   MEAN VALUE =    33.

!GFLT GOULD,VT
```
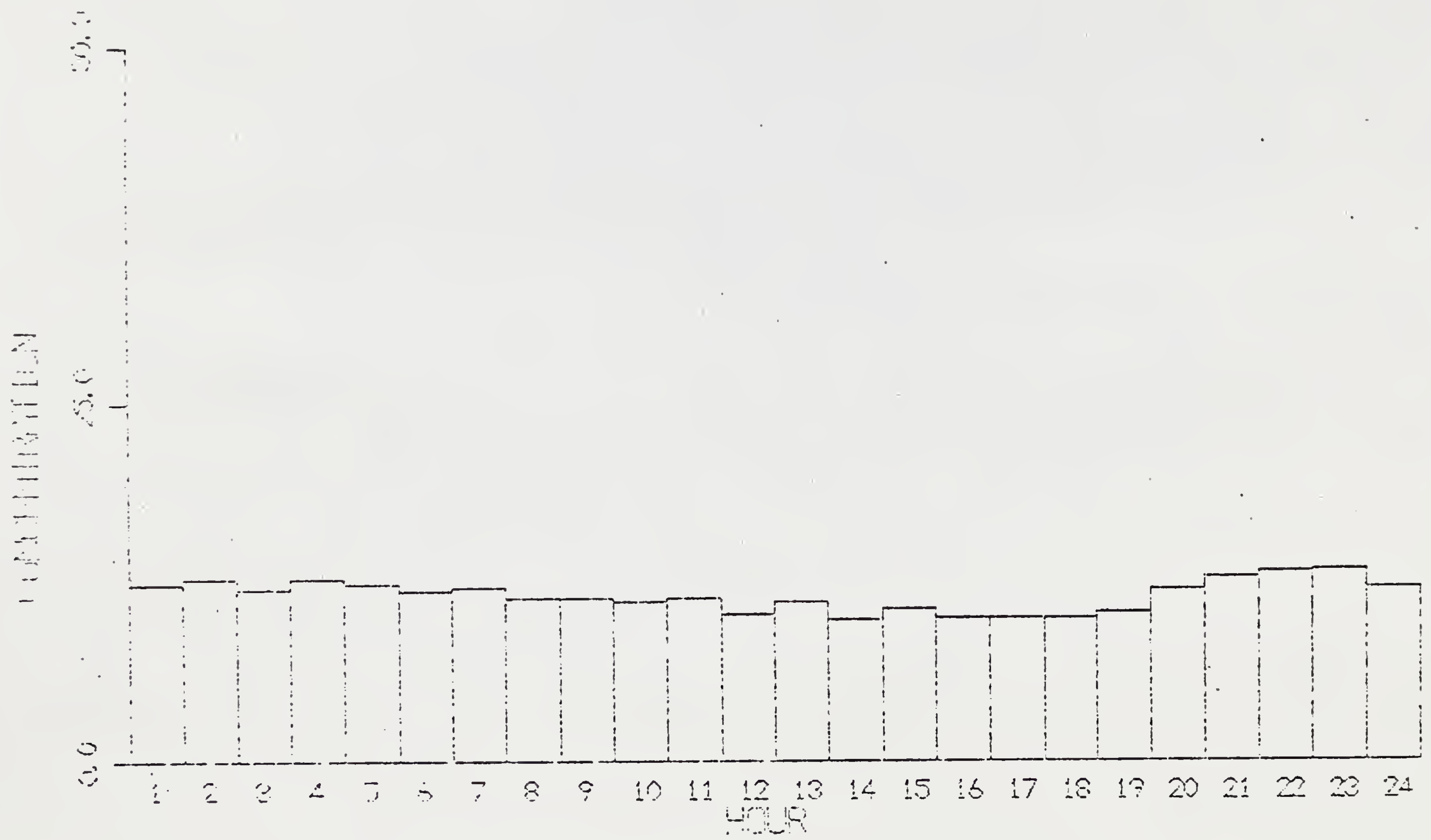
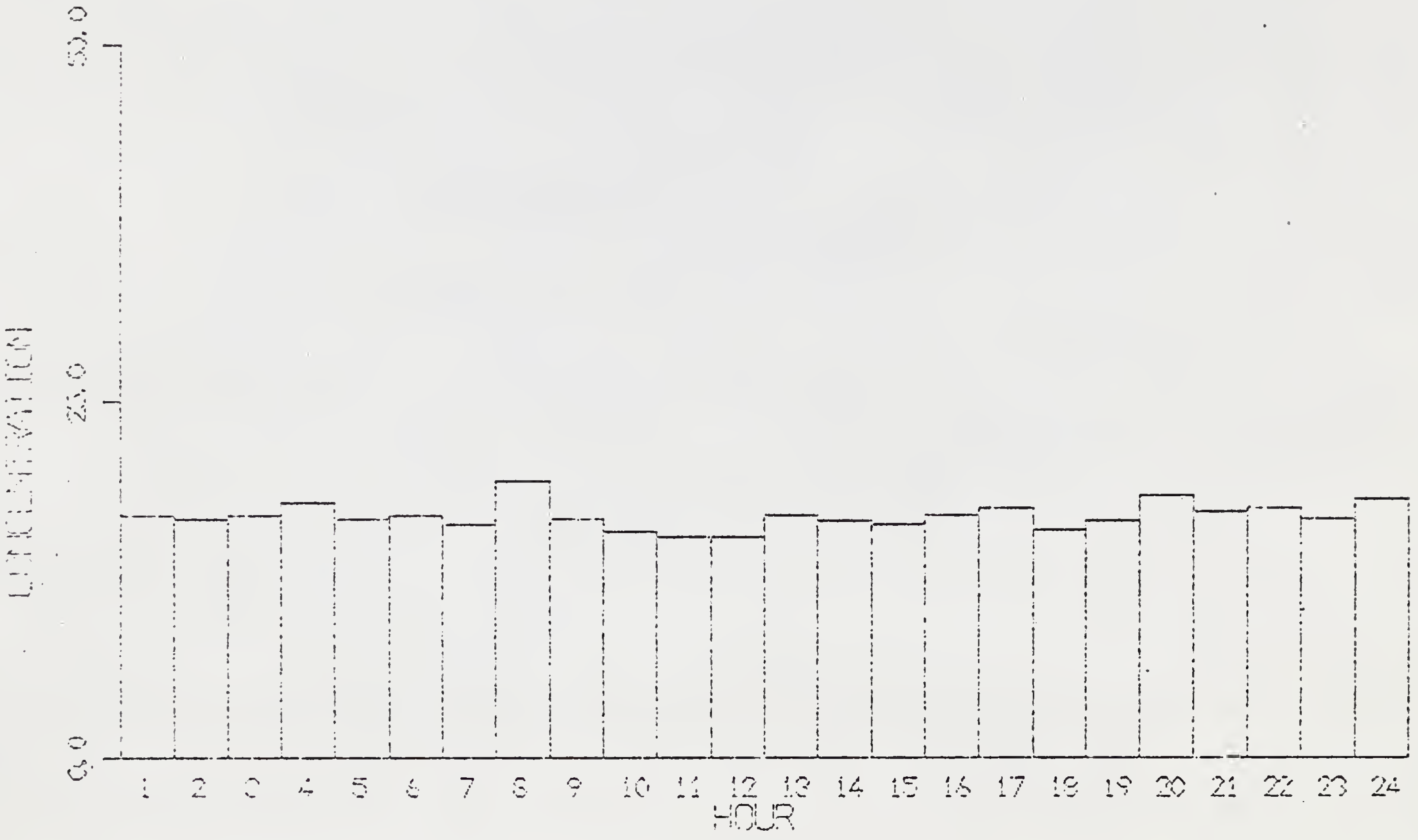



DIURNAL VARIATION OF CARBON MONOXIDE(PPB X 10**-2)
SITE - 20

DIURNAL VARIATION OF CARBON MONOXIDE(PPB X 10**-2)
TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1											2	2	2	1	1	2	1	2	1	1	1	1			2.
2					0	0								0	1	1	1								2.
3																0		1	0						1.
4													0	1	2	2	2	1	1					1	2.
5	1	0	1		1	1	2	1	2	1		2	2	2	2	2	2	2	2	2	2		0		2.
6		0	0		0	1		1	1	2		1	1	2	2	2	2	2	2	2				2	2.
7	1	1	1	0	0	1	1	2	1	1	2	2		2	2	2	2	2	2		2	2	2	2	2.
8	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	1	2	2	3.
9	2	3	3	3	2	6	3	2	3	3	3	4		3											3.
10																									
11	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	17	14	14	14	15.
12	14	14	14	14	14	14	14	14	14	14	15	15	15	0						15	16	15	15	14	15.
13	15	15	15	15	15	14	15	15	15	14	15		15	14	23	15	14	14	14	14	14	17	16	15	15.
14	15	15	15	14	14	15	15	15	14	14	14	14	14	14	14	14	14	14	14	14	14	15	14	15	15.
15	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	13	13	13	13	13	14.
16	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	13	13	14	14	14		14.
17	14	14	14							0	0		7		14	6	9			10		13	13	13	12.
18	13	13	13									0	13	13	13	13	13	13	13	14	14	13	14	14	14.
19	14	14	13	13	14	13	14	14	14	13	13	13	13	13	13	13	13	13	13	14	14	13	13	13	14.
20	13	14																							14.
21	14	14	14	14	14	14	15	14	14	14	13	13	13	13	13	13	13	13	13	14	14	14	15	14	14.
22	14	14	15	15	14	15	14	14	14	15	14	0													15.
23															13	13	13	13	13	14	17	17	15	15	15.
24	15	14	13	13	13	14	14	15	16	14	13	13	13	13	13	13	13	13	13	14	14	14	14	14	14.
25	14	15	14	13	14	14	13	13	12	12	12	12	12	12	12	12	12	12	12	13	14	16	13	12	13.
26	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	12	11	11	11	15	15	14	14	14	13.
27	14	16	12	13	13	12	12	13	12	11	12	12	12	12	12	12	12	12	12	12	13	14	13	12	13.
28	13	12	12	12	14	13	12	12	12	12	12	12	12	11	12	12	11	11	12	12	12	12	12	12	12.
29																									
30																									
MEAN	12.	13.	12.	13.	12.	12.	12.	11.	11.	11.	11.	10.	11.	10.	11.	10.	10.	10.	10.	12.	13.	13.	13.	12.	

TOTAL NUMBER OF OBSERVATIONS = 5355 MEAN VALUE = 12.



DIURNAL VARIATION OF CARBON MONOXIDE(PPB X 10**-2)
SITE - 23

```
                        [illegible]
                        [illegible]

                                                HOUR
       1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

 1
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21
22
23
24
25                                                                        17   18   15   20   18   16   22   15   20   16.
26    18   17   15   20   17   18   13   21   17   15   18   16   18   17   13   18   18   13   15   17   17   16   15   18   17.
27    16   16   18   17   18   17   18   17   16   18   15   15   16   17   16   15   17   17   16   15   17   18   17   15   17.
28    17   17   19   18   16                                                   18    0   19   16   17   20   18   17   18   15   16.
29    16        18   18   17   16   17   19   16   16   13   16   16   16   16   19   17        14   18   15   13   15   17   17.
30    16   16   14   15   14   15   16   18   16   13   14   13   15   15   17   14   14   15   15   19   16   17   17   19   15.

MEAN  17.  17.  17.  18.  17.  17.  16.  19.  17.  16.  16.  16.  17.  17.  16.  17.  17.  16.  17.  16.  17.  17.  17.  16.

                 TOTAL NUMBER OF OBSERVATIONS =  1350   MEAN VALUE =   17.

!GPLT GOULD.VT
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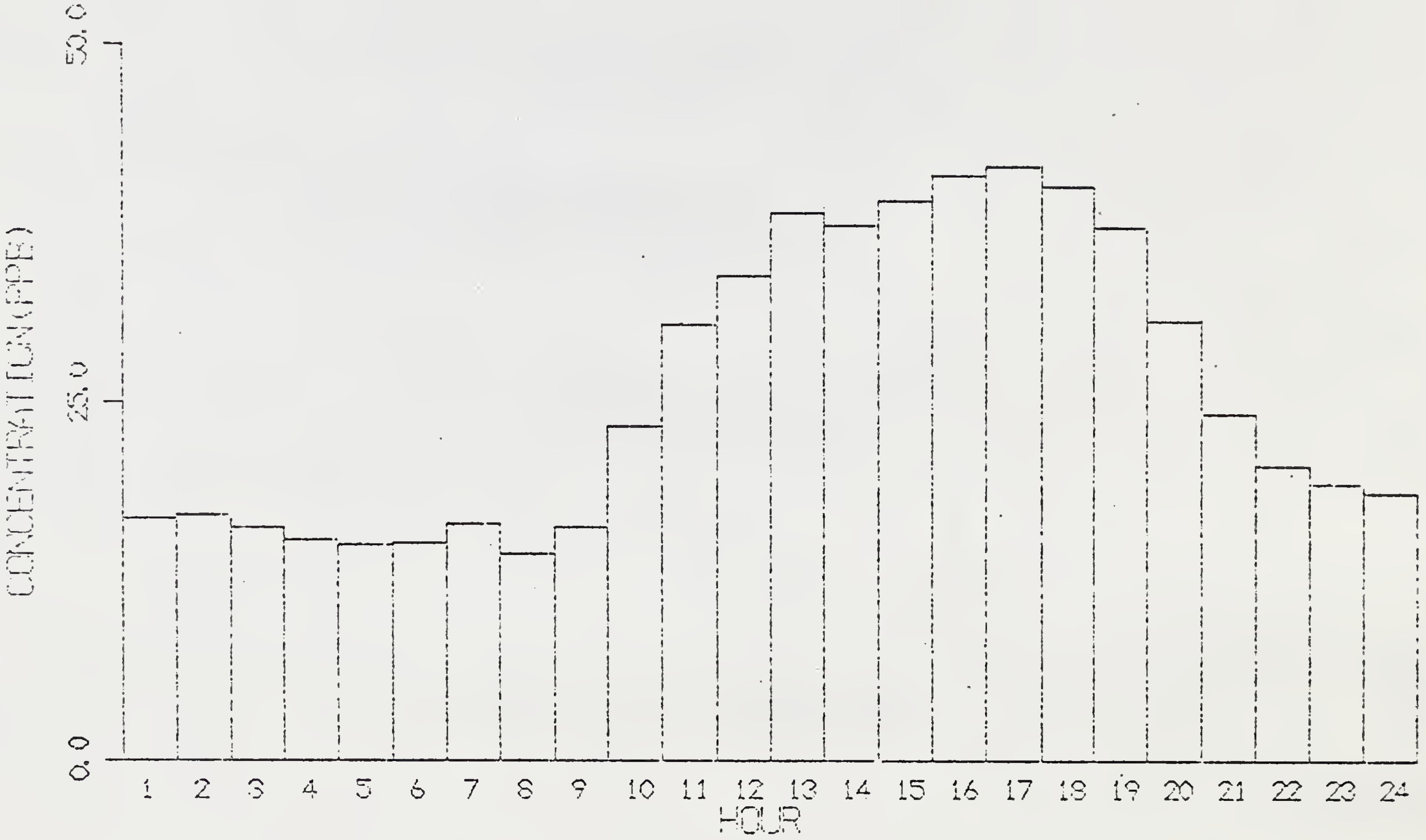


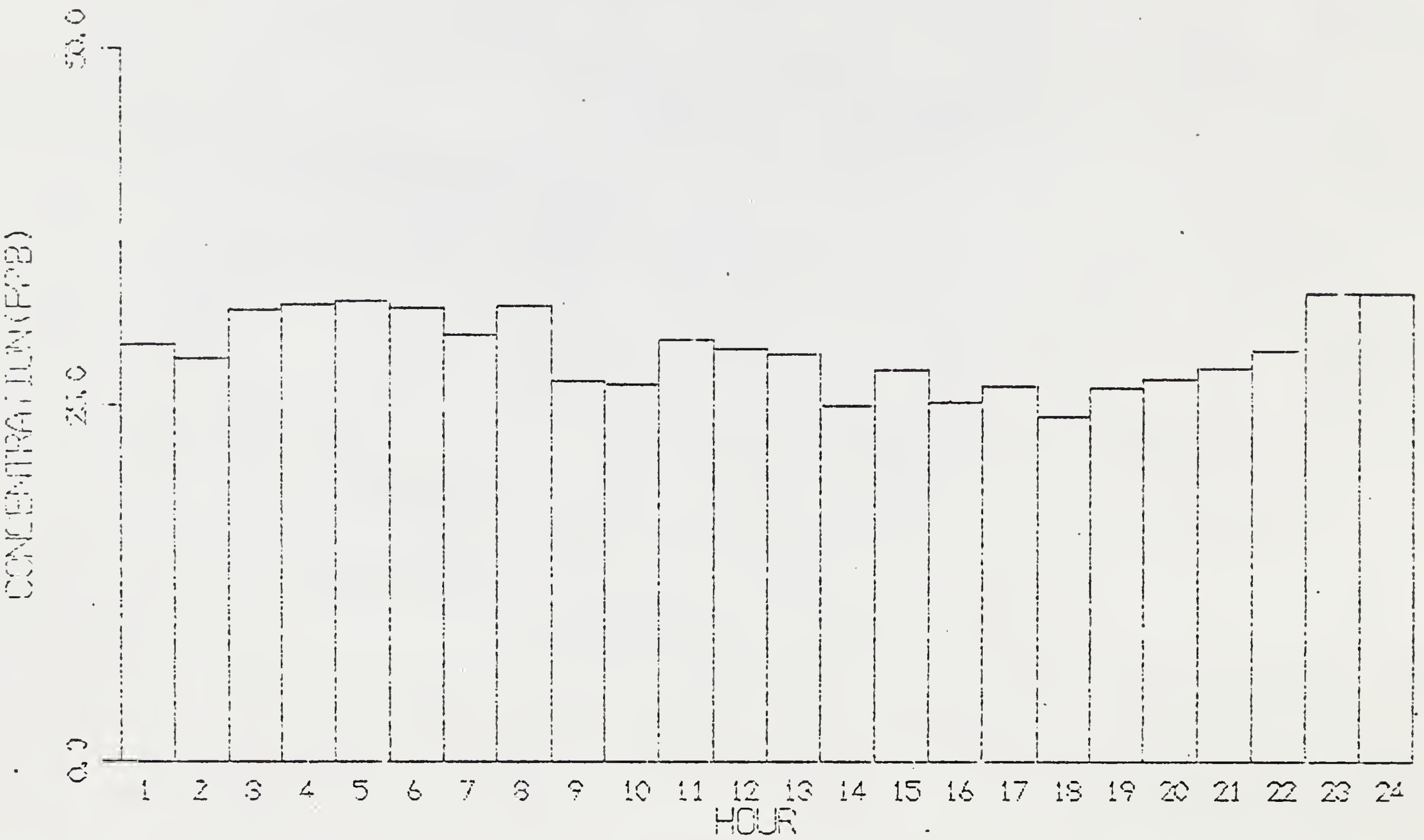
DIURNAL VARIATION OF OZONE(PPB)
SITE - 20

DIURNAL VARIATION OF OZONE(PPB)
TRAILER NO. - 20 PERIOD(9/ 1/74 TO 9/30/74)

HOUR

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	0	0	0	0	0	0	0	0	0	5	16	18	18	19	18	16	19	19	19	13	7	4	0	0	5.
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4	6	7	8	0	0	0	0	1.
3	0	0	0	0	0	0	0	0	0	3	8	10	11	13	12	14	14	21	17	8	0	0	0	0	6.
4	0	0	0	0	0	0	0	0	0	3	9	13	16	20	10	9	10	9	5	0	0	0	0	0	5.
5	0	0	0	0	0	0	0	0	0	0	2	11	12	12	10	10	10	9	10	10	5	0	0	0	4.
6	0	0	0	0	0	0	0	0	0	0	0	15	8	7	4	2	0	3	6	1	0	0	0	0	2.
7	0	0	0	0	0	0	0	0	0	0	5	6		3	3	3	4	4	0	0	0	0	0	0	1.
8	0	0	0	0	0	0	0	0	0	0	0	6	10	15	21	22	20	20	19	10	1	0	0	0	6.
9	0	0	0	0	0	0	0	0	0	3	9	21		21	41	61	50	59	53	50	43	38	39	42	24.
10	39	38	34	34	35	38	39	40	37	46	54	56	59	60	58	60	63	60	61	56	45	45	42	37	45.
11	36	35	37	38	35	30	24	20	24	32	35	41	43	42	43	45	48	45	43	42	40	38	37	35	37.
12	35	29	17	16	19	19	18	18	18	19	20	24	25	0						27	20	13	11	7	20.
13	8	8	8	10	9	7	7	5	10	25	30		35	37	40	51	45	45	46	44	36	27	24	21	25.
14	20	25	19	16	17	18	18	20	25	39	44	48	46	45	48	51	54	49	41	43	33	21	13	11	32.
15	13	18	20	17	16	15	14	13	16	23	34	40	39	37	37	42	44	41	42	42	39	32	24	16	28.
16	13	10	8	8	7	11	11	12	13	22	31	39	45	46	48	46	42	39	38	38	32	23	19		27.
17	15	15	13	12	11	11	7	9	15	25	35		51	50	52	51	54	52	42	29	26	23	21	23	28.
18	22	21	22	0	0	0	0	0	0	13	26	27	59	59	57	57	56	53	53	40	27	25	24	24	28.
19	23	24	23	24	23	22	21	20	25	37	45	48	49	49	51	50	51	50	47	34	23	20	19	15	33.
20	19	22																							21.
21	17	18	19	18	16	15	18	17	23	38	47	47	46	49	51	51	53	56	54	41	28	26	29	28	34.
22	16	19	17	18	17	19	20	22	28	37	44	0													24.
23															56	57	56	54	48	34	21	20	24	28	40.
24	24	27	29	28	28	29	27	18	20	32	42	44	47	51	58	59	73	59	59	44	38	32	28	29	39.
25	31	28	30	28	28	26	29	29	33	40	51	53	55	55	57	56	59	55	50	39	28	22	31	33	40.
26	35	35	32	32	33	33	31	30	34	39	53	59	59	61	61	60	58	56	47	30	29	25	27	24	42.
27	26	29	31	29	35	34	32	31	30	47	52	58	65	61	56	62	60	54	52	51	38	30	23	25	43.
28	23	22	21	21	20	23	24	25	29	36	49	51	53	53	53	52	52	53	52	46	41	39	37	37	38.
29	36	35	35	34	33	34	34	35	38	42	50	46	44	44	45	46	46	40	37	30	28	29	29	29	38.
30	28	29	29	30	31	29	80	29	31	34	43	50	49	49	51	52	55	51	44	34	32	31	30	31	40.
MEAN	17.	17.	16.	15.	15.	15.	17.	14.	16.	23.	30.	34.	38.	37.	39.	41.	41.	40.	37.	31.	24.	21.	19.	19.	

TOTAL NUMBER OF OBSERVATIONS = 7889 MEAN VALUE = 25.



DIURNAL VARIATION OF OZONE(PPB)
SITE - 23

```
                                      DIURNAL VARIATION OF OZONE(PPB)
                               TRAILER NO. - 23  PERIOD( 9/ 1/74 TO  9/30/74)

                                                  HOUR
        1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  MEAN
DAY

   1
   2
   3
   4
   5
   6
   7
   8
   9
  10
  11
  12
  13
  14
  15
  16
  17                                                                                            0    0    0    0    0    0    0.
  18    0    0    0    0    0    0    0    0    0    0                   0    0    0    0    0    0    0    0    0              0.
  19                                            0    0    0    0    2    2         0    0    0                                  1.
  20
  21
  22
  23
  24
  25                                                                             28   29   30   26   29   29   30   31   31   30.
  26   31   32   31   33   33   33   28   34   33   33   30   30   28   28   29   28   28   27   29   29   30   25   31   30   31.
  27   32   30   32   33   33   34   29   34   34   32   32   31   31   30   28   26   30   29   29   29   30   30   32   32   31.
  28   27   33   34   33   34                                               25    0   41   42   42   43   43   44   45   45   39.
  29   42        52   46   47   47   45   46   46   45   44   43   41   41   41   43   43        43   41   42   43   44   45   45.
  30   45   44   45   45   44   44   44   43   43   41   43   39   38   37   38   37   39   40   40   41   42   43   43   44   42.

MEAN  29.  28.  32.  32.  32.  32.  34.  32.  27.  26.  29.  29.  28.  25.  27.  25.  26.  24.  26.  27.  27.  29.  33.  33.

                         TOTAL NUMBER OF OBSERVATIONS =  1755   MEAN VALUE =   29.
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!GPLT GOULD.VT
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E G & G Upper Air Data (Ref 2)

EG&G

AL-ECP-74-107
6 DECEMBER 1974

UPPER AIR STUDIES OVER FEDERAL OIL SHALE TRACT C-b DURING OCTOBER 1974

PREPARED FOR
THE ATLANTIC RICHFIELD COMPANY
UNDER
CONTRACT NO. 66123

APPROVED BY

LC Meyer

L. C. MEYER, PhD
PROGRAM MANAGER

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1.0 INTRODUCTION

This report summarizes and presents upper air meteorological data taken over Federal Oil Shale Tract C-b during the period 1 October to 15 October 1974. The studies to acquire winds aloft from the surface to 6000 feet and temperature profiles over the same height interval were performed by EG&G for the Atlantic Richfield Company.

Because of the present sparsity of local meteorological surface based data, no attempt is made in this report to correlate the upper air data in terms of both winds and lapse rates to diffusion estimates.

1.1 BRIEF SUMMARY

A brief summary of the most noteworthy points found in the data is presented here. For a more complete description of the processes involved and a summary, the reader is referred to EG&G Report # AL-ECP-74-109, 6 December 1974, "Upper Air Correlation Studies for October 1974 Between Federal Oil Shale Tracts C-a and C-b and Grand Junction, Colorado."

The topography of the Federal Oil Shale Tract C-b is complex. The wind structure above the tract depends heavily upon the upper (500 mb) level flows as well as the detailed surface topography. In general, the upper level winds are from the west, although during the study period, the winds ranged from throughout all sectors.

The temperature structure above the tract followed the dry adiabatic lapse rate very well above about 1500 feet above the surface on clear days. On moist days (with showers in the area) the temperature structure showed more of a wet adiabatic behavior. The lower 1500 feet above the surface showed a somewhat more complex profile with inversions in the morning hours which generally broke up by afternoon. The temperature inversions were much more pronounced in the valleys below the tract. The average mixing layer depth in the presence of an inversion at the early morning sounding (about 05:00 MST) was about 750 feet above the proposed plant location (7000 MSL). At about 08:00 MST, the average mixing layer depth in the presence of an inversion was about 500 feet.

2.0 DATA ACQUISITION TECHNIQUES

2.1 TEMPERATURE PROFILES

The vertical temperature structure from the surface to 13,000 feet MSL was determined four times daily using a shielded sensitive thermistor mounted on a wing strut of a light aircraft which was flown out of Rifle, Colorado. The four flights were made at approximately 05:00, 08:00, 12:00 and 17:00 MST on days when the weather permitted safe flying. During daylight hours, soundings were made to within 100 feet of the surface; during night flights, 500 foot safety margins were observed. In addition, flights were made down nearby valleys to determine the temperature structure of the air actually below the proposed plant site on the 08:00 and 12:00 hour soundings.

The instrument used for the temperature recording was an EG&G portable temperature recorder Model 702 which is designed to achieve high-resolution temperature recording from a moving airplane or automobile.

The unit is capable of measuring temperatures in the range from $-30^{\circ}C$ to $+32^{\circ}C$ with an absolute accuracy better than $\pm 0.2^{\circ}C$, although for this operation, the unit was calibrated to within $\pm 0.1^{\circ}C$. The specifications of the Model 702 are given in Table 1.

TABLE 1

Specifications:

Sensor Probe:		
	Type	Thermistor head in weatherproof radiation shield
	Range	-30°C to +32°C in six ranges
	Accuracy	± 0.2°C absolute
	Time Response	less than 2 seconds for 63% recovery in still air
Recorder:		
	Resolution	.1°C
	Process	Meter and permanent, inkless on pressure sensitive paper
	Chart Speed	60 inches per hour
	Chart Paper	63 feet by 2 5/16 inch usable width
	Power	Nickel-cadmium batteries, 10-hour operation

As the plane spiraled up to 13,000 feet in an approximately 1 km diameter helix at approximately 400 ft/minute, altitude markings were recorded on a temperature chart by an observer. While the pilot attempted to maintain a constant rate of ascent, this was not always possible due to turbulence. For this reason, temperature/altitude readings were taken from the charts only at points marked with a distinct altitude. No interpolations between markings were used.

2.2 WINDS ALOFT

The vertical wind structure from the surface to 13,000 feet MSL or cloud base was determined four times daily using 30 gram pilot balloons in conjunction with a theodolite. The theodolite was aligned to magnetic north and then corrected to true north by rotating it 15^{o} counterclockwise. The balloons were carefully "weighed off" using a standard National Weather Service inflation kit for 30 gram balloons inside an enclosed area within several hundred feet of the main meteorological tower to rule out any influence which wind might cause. These balloons rise at an approximately constant rate of 600 feet per minute. During night operations, small water activated batteries connected to a tungsten filament bulb were attached to the balloon before it was weighed off to allow optical tracking.

The balloons were released at 05:00, 08:00, 12:00 and 17:00 hours MST on days in which temperature soundings were made. At 30-second intervals, azimuth and elevation were vocally recorded to within 0.1 degree. The balloons were kept in the field of view at all times and only after the sounding was completed were the voice records transcribed to data sheets.

3.0 DATA PRESENTATION

During the course of the 15-day study period, soundings over the oil shale tract were aborted on four entire days due to inclement weather causing dangerous flying conditions. A general description of the weather conditions for the 15-day period is given in Table 2.

TABLE 2

Date	Conditions
10/1/74	Weather clear/few high cirrus/500mb winds 20 knots-300 degrees
10/2/74	Weather clear/few high cirrus/500mb winds 20 knots-240 degrees
10/3/74	Weather clear in morning/17:00 MST sounding cancelled/storm front causing high winds from Southwest and scattered showers
10/4/74	No soundings taken/heavy showers/ceiling 8000 feet/SW winds
10/5/74	No soundings/Scattered thundershowers/ground fog/West wind
10/6/74	No soundings/ Widely scattered thundershowers/Low fog clearing by 09:00/500mb winds 20 knots-270 degrees
10/7/74	Widely scattered thundershowers/500mb winds 10 knots-270 degrees
10/8/74	Weather clear/few high cirrus/500mb winds 10 knots-270 degrees
10/9/74	Scattered strata cumulus at 18-20,000 in morning developed to heavy thundershower activity in afternoon at 14,000 feet/500mb winds 35 knots at 230 degrees
10/10/74	Widely scattered thundershowers/500mb winds 20 knots-250 degrees
10/11/74	Early morning ground fog, breaking up at about 09:00 MST. Moderate afternoon thundershower activity/ceiling 10-12,000/ 17:00 MST sounding cancelled due to heavy thunderstormactivity in study area
10/12/74	No soundings taken/Heavy showers/ceiling 8000 feet
10/13/74	Heavily overcast with ground fog in morning, breaking about 10:00 MST/Scattered thundershowers in afternoon
10/14/74	Weather clear/few high cirrus/500mb winds 35 knots-350 degrees
10/15/75	Weather clear/few high cirrus/500mb winds 35 knots-000 degrees

The release times of the pilot balloons (pibals) and the temperature sounding times along with the heights attained by the balloons and the surface temperatures are presented in Table 3.

A summary of all pibal measurements taken over the study period and the resultant calculated upper air velocities and directions is given in Appendix A. Each sighting is listed and the height and horizontal coordinates (x and y) are calculated assuming a 600 feet/minute constant rate of rise. Between each sighting a median height, velocity and direction is listed. These values were calculated from the prior and subsequent sighting data. A value of 999.00 indicates that a particular data point was missing.

The data in Appendix A were plotted in polar form to give a qualitative and quantitative means of viewing the data. These polar plots are presented in Appendix C. Each sounding has a corresponding polar plot. The points indicate the balloon position at a particular sighting. The numbers alongside the points represent the calculated height of the balloon at that point in hundreds of feet.

A summary of all the temperature soundings is given in Appendix B. Each sounding on a particular day is plotted alongside any other soundings on that day. Soundings were extended down nearby valleys during the daylight hours and when weather permitted, to investigate the temperature structure of the air masses below the level of the proposed plant site. These soundings revealed the fact that in most cases when an inversion was present the inversion intensity at the lower levels was much more severe than at the proposed plant altitude. An excellent example of this type of behavior is shown in the temperature profile taken at about 08:00 on 8 October, 1974 (See Figure B-6).

TABLE 3

DATE	FLIGHT NUMBER	TIME OF PIBAL RELEASE	TIME OF TEMP. SOUNDING	PIBAL HEIGHT	GROUND TEMP.
10/1/74	1	04:45	04:37	3000	7.2
	2	07:02	07:42	6000	4.4
	3	11:00	11:29	3900	20.0
	4	16:00	16:20	5400	23.3
10/2/74	1	04:02	04:31	6000	7.8
	2	07:00	07:58	6000	7.2
	3	11:00	11:49	6000	23.9
	4	16:00	16:48	6000	24.4
10/3/74	1	04:04	04:45	6000	10.0
	2	07:00	07:40	5700	8.9
	3	11:00	12:00	6000	20.6
	4				
10/4/74	1				
	2				
	3				
	4				
10/5/74	1	05:00		NP	3.3
	2		06:08		
	3				
	4				
10/6/74	1				
	2				
	3				
	4				
10/7/74	1	05:15	05:45	4500	-.6
	2	08:00	08:38	9000	3.3
	3	12:00	12:25	8700	20.0
	4	17:00	17:30	9000	
10/8/74	1		05:45		
	2	08:00	08:40	7200	
	3	12:00	12:36	7200	
	4	17:00	17:55	6900	
10/9/74	1	05:00	05:59	7200	8.3
	2	08:00	08:29	7200	11.1
	3	12:00	12:24	5100	19.4
	4	17:00	17:23	7200	
10/10/74	1	05:00	05:24	5700	5.0
	2	08:00	08:25	4800	6.7
	3	12:00	12:24	6300	17.8
	4	17:00	17:26	5700	17.2
10/11/74	1	05:00	05:39	4200	3.9
	2	08:00	08:28	600	4.4
	3	12:10		7200	11.1
	4				
10/12/74	1				
	2				
	3				
	4				
10/13/74	1				
	2				
	3	12:17	12:30	9000	
	4	17:00	17:31	9300	11.1
10/14/74	1	05:00	05:48	6600	0.0
	2	08:00	08:28	6900	-.6
	3	12:00	12:40	8700	12.8
	4	17:00	17:35	9000	13.3
10/15/74	1		05:50		
	2	08:05	08:30	9000	15.6
	3	12:00	12:30	9000	16.7
	4		17:41		

APPENDIX A

Upper-air Pilot Balloon Sounding Summaries Over Federal Oil Shale Tract C-b During the Period 1 October to 15 October 1974

AZIMUTH	- Horizontal angle to balloon in degrees clockwise from north at time of sighting
ELEVATION	- Vertical angle to balloon in degrees from horizontal at time of sighting
HEIGHT	- Vertical elevation in feet from release point to balloon at time of sighting
X	- Calculated easterly distance in feet from release point to balloon at time of sighting
Y	- Calculated northerly distance in feet from release point to balloon at time of sighting
HEIGHT	- Interpolated height of balloon in feet above the surface
VELOCITY	- Interpolated velocity of balloon in mph from prior and succeeding sightings
HEADING	- Interpolated heading angle of balloon in degrees clockwise from north from prior and succeeding sightings

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 4 00 HOURS ON 1/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	308.24	60.40	300.00	-134.0	105.4
1.00	276.23	62.42	600.00	-311.7	33.7
1.50	999.00	999.00	900.00	999.0	999.0
2.00	999.00	999.00	1200.00	999.0	999.0
2.50	999.00	999.00	1500.00	999.0	999.0
3.00	131.10	64.91	1800.00	-311.7	33.7
3.50	999.00	999.00	2100.00	999.0	999.0
4.00	999.00	999.00	2400.00	999.0	999.0
4.50	132.12	42.91	2700.00	2155.9	-1947.6
5.00	134.18	40.91	3000.00	2484.6	-2412.3

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	3.88	308.15
450.00	4.35	248.02
750.00	999.00	999.00
1050.00	999.00	999.00
1350.00	999.00	999.00
1650.00	999.00	999.00
1950.00	999.00	999.00
2250.00	999.00	999.00
2550.00	999.00	999.00
2850.00	12.94	144.71

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 7 00 HOURS ON 1/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	82.25	63.37	300.00	145.9	19.9
1.00	84.40	75.14	600.00	158.6	15.6
1.50	72.61	81.90	900.00	122.5	38.4
2.00	70.59	82.92	1200.00	140.9	49.7
2.50	94.92	79.51	1500.00	277.1	-23.8
3.00	122.58	76.51	1800.00	364.4	-232.6
3.50	126.74	75.87	2100.00	424.2	-316.4
4.00	130.40	77.69	2400.00	399.5	-339.7
4.50	145.59	78.63	2700.00	306.1	-446.4
5.00	159.40	77.92	3000.00	226.5	-601.6
5.50	174.44	76.47	3300.00	77.5	-791.2
6.00	170.66	76.80	3600.00	137.7	-834.1
6.50	161.75	75.12	3900.00	325.4	-984.9
7.00	149.40	74.00	4200.00	614.1	-1037.3
7.50	140.44	72.35	4500.00	885.7	-1071.1
8.00	134.08	69.52	4800.00	1289.3	-1247.4
8.50	131.04	66.51	5100.00	1673.4	-1455.5
9.00	132.15	62.25	5400.00	2108.9	-1905.9
9.50	131.20	59.76	5700.00	2502.2	-2188.6
10.00	129.49	57.50	6000.00	2952.2	-2430.6

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	3.35	82.21
450.00	0.31	108.89
750.00	0.97	302.21
1050.00	0.49	58.46
1350.00	3.52	118.31
1650.00	5.14	157.32
1950.00	2.34	144.43
2250.00	0.77	226.71
2550.00	3.22	221.16
2850.00	3.97	207.11
3150.00	5.48	218.15
3450.00	1.68	125.45
3750.00	5.47	126.76
4050.00	6.67	100.26
4350.00	6.22	97.10
4650.00	10.01	113.59
4950.00	9.93	118.43
5250.00	14.24	135.95
5550.00	11.01	125.70
5850.00	11.51	113.26

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                              UPPER-AIR PILOT BALLOON SOUNDING
                              FOR TRACT C-B  AT 11 00 HOURS ON  1/10/74

TIME INTO  AZIMUTH  ELEVATION  HEIGHT      X       Y           HEIGHT    VELOCITY   HEADING
 FLIGHT    -DEG.-    -DEG.-    -FEET-   -FEET-  -FEET-         -FEET-     -MPH-     -DEG.-
-MINUTES-

   0.00      0.00      0.00      0.00      0.0     0.0
                                                               150.00      1.40      24.35
   0.50     24.35     78.41    300.00     25.4    56.1
                                                               450.00      1.13     110.48
   1.00     61.81     82.25    600.00     72.1    38.7
                                                               750.00      4.28      45.31
   1.50     50.30     73.45    900.00    205.9   171.0
                                                              1050.00      3.86      71.33
   2.00     58.64     70.29   1200.00    367.3   224.0
                                                              1350.00      5.85      97.48
   2.50     73.01     66.55   1500.00    622.6   190.4
                                                              1650.00      7.28      77.54
   3.00     74.51     61.68   1800.00    935.2   259.4
                                                              1950.00    999.00     999.00
   3.50    999.00    999.00   2100.00    999.0   999.0
                                                              2250.00    999.00     999.00
   4.00     67.61     53.90   2400.00   1618.6   667.2
                                                              2550.00     13.74      48.25
   4.50     62.66     49.22   2700.00   2069.6  1069.7
                                                              2850.00     12.69      61.21
   5.00     52.40     46.10   3000.00   2553.9  1338.5
                                                              3150.00     15.84      47.96
   5.50     59.61     42.78   3300.00   3076.7  1805.2
                                                              3450.00     33.53      54.81
   6.00     53.21     35.55   3600.00   4282.5  2655.4
                                                              3750.00     29.49     358.61
   6.50     47.16     33.90   3900.00   4252.0  3952.4
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UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 16 00 HOURS ON 1/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	148.64	33.43	300.00	236.8	-388.0
1.00	149.90	31.54	600.00	490.8	-345.7
1.50	151.01	37.72	900.00	564.6	-1017.8
2.00	151.08	45.02	1200.00	580.6	-1049.6
2.50	154.49	45.75	1500.00	630.2	-1318.9
3.00	151.53	45.38	1800.00	847.8	-1561.5
3.50	147.38	44.78	2100.00	1142.0	-1782.4
4.00	144.89	42.89	2400.00	1487.4	-2113.4
4.50	144.60	40.42	2700.00	1838.2	-2584.0
5.00	142.42	40.15	3000.00	2170.8	-2818.1
5.50	140.70	40.80	3300.00	2423.5	-2953.1
6.00	138.19	39.30	3600.00	2934.5	-3277.9
6.50	136.48	38.49	3900.00	3579.9	-3556.0
7.00	135.25	37.30	4200.00	3684.2	-3914.7
7.50	134.76	37.59	4500.00	4152.1	-4116.7
8.00	132.06	35.23	4800.00	5049.5	-4552.2
8.50	130.06	35.23	5100.00	5530.6	-4646.6
9.00	128.10	35.70	5400.00	5917.2	-4635.6

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	10.33	148.60
450.00	11.90	150.95
750.00	4.26	156.77
1050.00	0.81	153.32
1350.00	6.22	169.55
1650.00	7.41	138.10
1950.00	8.36	126.88
2250.00	10.87	133.77
2550.00	13.34	143.28
2850.00	9.24	125.13
3150.00	6.57	118.98
3450.00	13.70	122.02
3750.00	11.93	121.97
4050.00	14.06	125.42
4350.00	7.63	127.00
4650.00	22.67	115.88
4950.00	11.14	101.09
5250.00	8.79	88.37

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                         UPPER-AIR PILOT BALLOON SOUNDING
                    FOR TRACT C-B  AT  4 00 HOURS ON  2/10/74

TIME INTO   AZIMUTH  ELEVATION   HEIGHT      X       Y         HEIGHT    VELOCITY  HEADING
 FLIGHT     -DEG.-    -DEG.-     -FEET-   -FEET-  -FEET-       -FEET-     -MPH-    -DEG.-
-MINUTES-

   0.00       0.00       0.00      0.00      0.0     0.0
                                                               150.00      0.92    134.96
   0.50     135.00      82.35    300.00     28.6   -28.5
                                                               450.00      0.92    124.20
   1.00     129.60      82.36    600.00     62.2   -51.4
                                                               750.00      3.91    107.33
   1.50     114.41      74.57    900.00    226.5  -102.7
                                                              1050.00      2.78     77.38
   2.00     102.40      73.57   1200.00    345.9   -75.9
                                                              1350.00    999.00    999.00
   2.50     999.00     999.00   1500.00    999.0   999.0
                                                              1650.00    999.00    999.00
   3.00      89.45      52.91   1800.00   1361.3    13.5
                                                              1950.00     18.03     87.03
   3.50      88.57      44.28   2100.00   2153.4    54.4
                                                              2250.00     13.07     79.94
   4.00      86.76      41.39   2400.00   2719.6   154.7
                                                              2550.00      7.96     46.13
   4.50      82.40      42.01   2700.00   2972.0   397.4
                                                              2850.00      5.21      9.86
   5.00      78.32      44.30   3000.00   3011.3   623.3
                                                              3150.00      5.32     44.52
   5.50      76.04      45.25   3300.00   3175.5   790.2
                                                              3450.00     25.43     70.17
   6.00      74.55      39.38   3600.00   4228.2  1169.7
                                                              3750.00     18.77     61.14
   6.50      72.44      36.91   3900.00   4951.3  1568.2
                                                              4050.00     15.08     67.38
   7.00      71.87      35.66   4200.00   5563.9  1323.2
                                                              4350.00      4.53     21.49
   7.50      70.40      36.95   4500.00   5636.9  2008.7
                                                              4650.00      5.03     48.31
   8.00      69.63      37.80   4800.00   5802.1  2155.9
                                                              4950.00     81.83    329.16
   8.50      37.01      37.81   5100.00   3956.7  5250.2
                                                              5250.00     80.11    139.32
   9.00      67.62      38.61   5400.00   6253.8  2576.7
                                                              5550.00     10.17     59.03
   9.50      67.09      38.35   5700.00   6637.3  2806.8
                                                              5850.00      9.19     46.18
  10.00      66.00      38.35   6000.00   6929.2  3086.9
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UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 7 00.HOURS ON 271074

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	355.25	69.75	300.00	-9.3	110.4
1.00	10.25	61.59	600.00	57.8	319.5
1.50	22.49	56.04	900.00	231.9	560.3
2.00	33.21	52.27	1200.00	508.6	777.2
2.50	44.59	48.12	1500.00	944.3	958.2
3.00	52.31	45.53	1800.00	1398.5	1030.9
3.50	58.13	41.70	2100.00	2002.0	1245.2
4.00	61.57	37.45	2400.00	2755.9	1492.7
4.50	64.61	35.80	2700.00	3382.5	1606.3
5.00	65.01	33.68	3000.00	4080.8	1903.1
5.50	65.26	32.72	3300.00	4665.5	2151.1
6.00	66.61	31.04	3600.00	5491.1	2376.5
6.50	66.39	30.44	3900.00	6082.0	2660.0
7.00	67.08	30.95	4200.00	6451.7	2729.7
7.50	67.59	29.39	4500.00	7387.1	3048.2
8.00	68.68	29.05	4800.00	8051.3	3144.4
8.50	68.69	28.62	5100.00	8708.4	3399.3
9.00	67.20	28.28	5400.00	9254.2	3892.5
9.50	67.18	28.90	5700.00	9518.6	4007.6
10.00	67.19	27.68	6000.00	10544.9	4437.6

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	2.52	355.15
450.00	4.99	17.78
750.00	6.75	35.88
1050.00	7.99	51.91
1350.00	10.72	67.43
1650.00	10.69	74.88
1950.00	14.21	74.76
2250.00	16.03	71.82
2550.00	14.47	79.72
2850.00	17.24	66.96
3150.00	14.43	67.01
3450.00	19.45	74.72
3750.00	14.90	64.36
4050.00	8.55	79.33
4350.00	22.46	71.19
4650.00	15.25	81.75
4950.00	16.02	68.79
5250.00	16.72	47.89
5550.00	6.55	66.46
5850.00	25.29	67.26

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 11 00 HOURS ON 2/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	3.42	42.08	300.00	19.8	331.8
1.00	8.01	42.43	600.00	91.5	650.2
1.50	9.01	43.78	900.00	147.1	927.9
2.00	13.26	45.65	1200.00	269.5	1142.1
2.50	16.81	46.48	1500.00	412.0	1364.0
3.00	20.21	47.35	1800.00	572.9	1556.5
3.50	23.60	47.79	2100.00	762.7	1746.1
4.00	26.90	44.31	2400.00	1112.4	2193.2
4.50	29.80	43.19	2700.00	1429.6	2496.7
5.00	33.21	42.02	3000.00	1823.8	2786.7
5.50	36.08	41.98	3300.00	2160.1	2965.2
6.00	37.42	40.68	3600.00	2545.3	3327.6
6.50	38.74	40.12	3900.00	2896.5	3611.2
7.00	41.02	39.95	4200.00	3291.3	3784.6
7.50	43.90	33.28	4500.00	3954.3	4110.3
8.00	45.61	37.72	4800.00	4435.3	4343.1
8.50	48.05	36.38	5100.00	5149.0	4629.6
9.00	50.18	36.80	5400.00	5544.7	4624.5
9.50	51.65	35.39	5700.00	6178.2	4889.7
10.00	52.80	33.21	6000.00	7301.3	5544.0

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	7.55	3.42
450.00	7.42	12.68
750.00	6.44	11.33
1050.00	5.61	29.74
1350.00	5.99	32.70
1650.00	5.70	39.88
1950.00	6.10	45.03
2250.00	12.90	38.03
2550.00	9.98	46.25
2850.00	11.12	53.66
3150.00	8.65	62.03
3450.00	12.02	46.74
3750.00	10.26	51.07
4050.00	9.80	66.29
4350.00	16.79	63.83
4650.00	12.15	64.16
4950.00	17.48	68.13
5250.00	8.99	90.72
5550.00	15.61	67.28
5850.00	29.54	59.77

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 16 00 HOURS ON 2/10/74

[illegible]E INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	38.60	32.69	300.00	291.7	365.5
1.00	37.30	36.59	600.00	489.8	643.1
1.50	40.52	35.30	900.00	825.9	966.6
2.00	40.85	35.80	1200.00	1088.4	1259.0
2.50	42.57	36.90	1500.00	1351.6	1471.9
3.00	40.70	36.21	1800.00	1603.3	1864.5
3.50	40.25	36.28	2100.00	1848.7	2184.3
4.00	39.76	35.51	2400.00	2151.4	2586.5
4.50	39.36	34.90	2700.00	2454.6	2993.5
5.00	38.80	33.80	3000.00	2808.3	3493.7
5.50	38.25	31.69	3300.00	3309.4	4199.1
6.00	37.75	30.90	3600.00	3681.2	4759.0
6.50	38.00	30.78	3900.00	4031.3	5161.2
7.00	38.89	31.90	4200.00	4236.6	5253.8
7.50	37.27	31.90	4500.00	4378.3	5755.1
8.00	36.70	31.07	4800.00	4761.5	6389.4
8.50	36.16	31.95	5100.00	4827.6	6602.8
9.00	35.85	31.37	5400.00	5087.2	7042.4
9.50	35.89	31.22	5700.00	5513.5	7621.3
10.00	35.59	31.22	6000.00	5761.6	8052.7

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	10.63	38.59
450.00	7.75	35.51
750.00	10.60	46.09
1050.00	8.93	41.91
1350.00	7.69	51.04
1650.00	10.60	32.65
1950.00	9.16	37.49
2250.00	11.44	36.76
2550.00	11.54	36.70
2850.00	13.92	35.25
3150.00	19.67	35.39
3450.00	15.27	33.56
3750.00	12.12	41.04
4050.00	5.12	65.72
4350.00	11.84	15.78
4650.00	16.84	31.12
4950.00	5.08	17.30
5250.00	11.60	30.55
5550.00	16.34	36.36
5850.00	11.31	29.90

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                             UPPER-AIR PILOT BALLOON SOUNDING
                       FOR TRACT C-B  AT  4 00 HOURS ON  3/10/74.

TIME INTO  AZIMUTH  ELEVATION   HEIGHT       X        Y         HEIGHT     VELOCITY  HEADING
  FLIGHT    -DEG.-    -DEG.-    -FEET-   -FEET-  -FEET-        -FEET-      -MPH-    -DEG.-
-MINUTES-

   0.00      0.00      0.00       0.00      0.0      0.0
                                                                150.00       2.60     11.20
   0.50     11.20     69.15     300.00     22.2    112.2
                                                                450.00      11.95     12.55
   1.00     12.31     43.16     600.00    136.4    625.3
                                                                750.00     999.00    999.00
   1.50    999.00    999.00     900.00    999.0    999.0
                                                               1050.00     999.00    999.00
   2.00     25.88     22.91    1200.00   1239.4   2555.3
                                                               1350.00      35.21     40.35
   2.50     30.98     19.00    1500.00   2242.4   3735.9
                                                               1650.00      30.00     38.46
   3.00     32.72     17.62    1800.00   3063.6   4769.4
                                                               1950.00      34.61     42.65
   3.50     34.32     16.32    2100.00   4095.4   5889.6
                                                               2250.00      34.81     51.76
   4.00     37.73     15.51    2400.00   5298.4   6837.3
                                                               2550.00      31.78     54.88
   4.50     40.14     15.12    2700.00   6442.2   7641.6
                                                               2850.00      23.80     70.82
   5.00     42.95     15.38    3000.00   7431.5   7985.5
                                                               3150.00       4.14    163.72
   5.50     43.78     16.97    3300.00   7482.5   7810.4
                                                               3450.00      31.43     57.62
   6.00     45.34     16.49    3600.00   8650.6   8551.1
                                                               3750.00      26.23     62.48
   [illegible].50     46.81     16.38    3900.00   9674.2   9084.3
                                                               4050.00      18.87     62.06
   7.00     47.70     16.62    4200.00  10407.7   9473.3
                                                               4350.00      15.97     70.94
   7.50     48.78     17.00    4500.00  11071.9   9702.7
                                                               4650.00      11.09     69.09
   8.00     49.42     17.55    4800.00  11528.0   9876.9
                                                               4950.00       8.71    195.21
   8.50     50.25     18.94    5100.00  11427.3   9507.2
                                                               5250.00      32.28     62.57
   9.00     51.32     18.38    5400.00  12687.9  10161.2
                                                               5550.00       9.97    101.34
   9.50     52.49     19.02    5700.00  13117.5  10072.6
                                                               5850.00      10.86     84.20
  10.00     53.34     19.50    6000.00  13592.9  10120.6
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UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 7 00 HOURS ON 3/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	20.10	30.48	300.00	175.2	478.8
1.00	28.98	26.55	600.00	581.8	1050.7
1.50	33.38	21.09	900.00	1284.0	1949.2
2.00	39.10	20.30	1200.00	2046.0	2518.3
2.50	43.67	20.88	1500.00	2715.4	2845.3
3.00	46.83	19.62	1800.00	3682.9	3455.9
3.50	48.91	19.48	2100.00	4474.7	3903.4
4.00	50.70	19.42	2400.00	5268.3	4313.6
4.50	51.95	20.42	2700.00	5711.4	4471.9
5.00	55.91	20.37	3000.00	6691.3	4530.8
5.50	53.38	19.35	3300.00	7591.3	5541.8
6.00	54.55	19.36	3600.00	8357.3	5930.5
6.50	55.42	19.32	3900.00	9159.6	6316.6
7.00	56.18	19.18	4200.00	10032.0	6723.6
7.50	57.05	19.07	4500.00	10390.3	6742.6
8.00	57.72	19.88	4800.00	11223.7	7092.8
8.50	59.32	18.68	5100.00	12974.4	7700.9
9.00	59.90	18.59	5400.00	13891.3	8056.2
9.50	59.46	18.51	5700.00	14665.0	8656.0

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	11.59	20.09
450.00	15.95	35.41
750.00	25.92	38.00
1050.00	21.62	53.24
1350.00	16.93	63.96
1650.00	26.00	57.74
1950.00	20.67	60.52
2250.00	20.30	62.07
2550.00	10.69	70.35
2850.00	22.32	66.55
3150.00	30.76	41.66
3450.00	19.52	63.09
3750.00	20.24	54.30
4050.00	21.88	64.96
4350.00	8.15	66.96
4650.00	20.55	67.20
4950.00	42.12	70.64
5250.00	22.35	53.82
5550.00	22.25	52.21

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 11 00 HOURS ON 3/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	26.82	25.01	300.00	290.2	574.0
1.00	12.09	33.05	600.00	193.2	901.9
1.50	3.94	32.45	900.00	220.0	1398.6
2.00	7.15	33.88	1200.00	222.5	1773.7
2.50	9.04	34.25	1500.00	346.2	2176.2
3.00	11.01	33.98	1800.00	510.1	2622.1
3.50	13.78	31.80	2100.00	806.8	3290.3
4.00	10.98	31.14	2400.00	756.6	3900.5
4.50	18.15	33.12	2700.00	1289.3	3933.7
5.00	20.06	26.03	3000.00	2107.1	5771.5
5.50	21.87	25.01	3300.00	2635.0	6566.2
6.00	23.21	24.98	3600.00	3045.4	7103.6
6.50	24.18	23.20	3900.00	3727.3	8303.1
7.00	24.80	22.41	4200.00	4272.2	9247.0
7.50	25.33	21.79	4500.00	4816.0	10176.8
8.00	25.76	21.22	4800.00	5376.8	11134.7
8.50	26.09	20.57	5100.00	5976.8	12208.2
9.00	26.31	19.38	5400.00	6619.2	13389.9
9.50	26.46	19.29	5700.00	7256.7	14583.4
10.00	26.51	18.71	6000.00	7907.3	15857.2

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	14.62	26.81
450.00	7.77	343.49
750.00	11.30	3.09
1050.00	8.52	0.38
1350.00	9.57	17.08
1650.00	10.80	20.18
1950.00	16.62	23.94
2250.00	13.91	355.26
2550.00	12.13	86.42
2850.00	45.72	23.49
3150.00	21.68	33.60
3450.00	15.37	37.36
3750.00	31.36	29.61
4050.00	24.79	29.97
4350.00	24.46	30.34
4650.00	25.23	30.34
4950.00	27.95	29.20
5250.00	30.57	23.53
5550.00	30.75	28.11
5850.00	32.51	27.07

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                        UPPER-AIR PILOT BALLOON SOUNDING
                     FOR TRACT C-B  AT  5 00 HOURS ON  5/10/74

TIME INTO  AZIMUTH  ELEVATION  HEIGHT     X       Y          HEIGHT    VELOCITY  HEADING
 FLIGHT    -DEG.-    -DEG.-    -FEET-  -FEET-  -FEET-        -FEET-     -MPH-    -DEG.-
-MINUTES-

   0.00      0.00     0.00       0.00     0.0     0.0
                                                             150.00     4.18      3.00
   0.50      3.00    58.50     300.00     9.6   183.7
                                                             450.00     3.01     64.17
   1.00     28.10    65.50     600.00   128.8   241.4
                                                             750.00     2.92     42.85
   1.50     32.80    66.10     900.00   216.1   335.5
                                                            1050.00     1.09    160.21
   2.00     38.70    72.80    1200.00   232.4   290.2
                                                            1350.00     2.93     21.52
   2.50     34.30    71.70    1500.00   279.7   410.2
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                    UPPER-AIR PILOT BALLOON SOUNDING
                  FOR TRACT C-B  AT  5 00 HOURS ON  7/10/74

TIME INTO  AZIMUTH  ELEVATION  HEIGHT     X       Y          HEIGHT    VELOCITY  HEADING
 FLIGHT    -DEG.-    -DEG.-    -FEET-  -FEET-  -FEET-        -FEET-    -MPH-     -DEG.-
-MINUTES-

  0.00      0.00      0.00      0.00     0.0     0.0
                                                             150.00     0.54     218.24
  0.50    218.30     85.50    300.00   -14.7   -18.6
                                                             450.00     0.52     297.93
  1.00    257.40     86.60    600.00   -34.9    -7.8
                                                             750.00     3.41     357.90
  1.50    344.20     80.70    900.00   -40.4   142.0
                                                            1050.00     3.16     296.36
  2.00    321.10     77.70   1200.00  -164.7   203.7
                                                            1350.00     2.12     324.06
  2.50    321.90     76.70   1500.00  -219.3   279.1
                                                            1650.00     1.55      18.86
  3.00    330.20     77.60   1800.00  -197.3   343.6
                                                            1950.00     2.05      40.05
  3.50    341.40     78.30   2100.00  -139.4   412.6
                                                            2250.00     1.07       0.05
  4.00    343.20     78.70   2400.00  -139.3   459.6
                                                            2550.00     1.97     356.91
  4.50    345.30     78.20   2700.00  -143.9   546.1
                                                            2850.00     1.84     353.03
  5.00    346.90     77.90   3000.00  -146.7   627.0
                                                            3150.00     1.77     358.69
  5.50    348.20     77.70   3300.00  -148.1   705.0
                                                            3450.00     2.05       8.20
  6.00    350.40     77.40   3600.00  -135.3   794.2
                                                            3750.00     1.30      13.48
  6.50    351.90     77.60   3900.00  -122.0   849.8
                                                            4050.00     1.56       8.22
  7.00    353.10     77.60   4200.00  -112.1   917.7
                                                            4350.00     1.68      42.48
  7.50    356.40     77.80   4500.00   -62.3   972.1
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UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 8 00 HOURS ON 7/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	88.00	75.30	300.00	78.7	2.8
1.00	97.90	85.90	600.00	42.8	-5.9
1.50	74.60	85.90	900.00	62.4	17.2
2.00	46.40	82.60	1200.00	113.1	107.7
2.50	314.20	82.70	1500.00	-138.2	134.1
3.00	320.10	84.30	1800.00	-115.7	138.1
3.50	29.30	87.40	2100.00	47.0	83.7
4.00	30.60	87.50	2400.00	53.7	90.8
4.50	34.70	73.60	2700.00	452.7	654.0
5.00	39.40	70.70	3000.00	667.2	812.5
5.50	41.70	68.50	3300.00	865.2	971.3
6.00	43.50	66.70	3600.00	1069.7	1123.6
6.50	43.20	65.90	3900.00	1194.7	1272.6
7.00	43.00	63.40	4200.00	1434.9	1539.2
7.50	45.50	62.00	4500.00	1707.2	1678.1
8.00	47.20	61.00	4800.00	1952.9	1808.9
8.50	49.30	60.50	5100.00	2188.3	1882.3
9.00	51.00	59.70	5400.00	2453.1	1987.1
9.50	52.00	59.50	5700.00	2646.6	2068.5
10.00	53.40	58.80	6000.00	2918.1	2168.0
10.50	54.50	58.20	6300.00	3181.0	2269.9
11.00	57.10	57.80	6600.00	3490.7	2259.2
11.50	60.10	57.40	6900.00	3826.5	2201.4
12.00	62.00	56.60	7200.00	4193.1	2230.6
12.50	65.10	55.40	7500.00	4694.3	2180.3
13.00	66.60	54.60	7800.00	5088.7	2203.4
13.50	68.40	53.60	8100.00	5554.0	2200.4
14.00	70.30	52.90	8400.00	5982.7	2143.7
14.50	71.90	52.20	8700.00	6416.2	2098.8
15.00	73.60	51.00	9000.00	6993.4	2060.1

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	1.79	87.97
450.00	0.84	256.39
750.00	0.69	40.56
1050.00	2.36	29.23
1350.00	5.74	275.97
1650.00	0.52	79.94
1950.00	3.90	108.48
2250.00	0.22	43.45
2550.00	15.69	35.32
2850.00	6.06	53.53
3150.00	5.77	51.26
3450.00	5.79	53.32
3750.00	4.42	40.00
4050.00	8.15	42.01
4350.00	6.95	62.96
4650.00	6.33	61.96
4950.00	5.61	72.57
5250.00	6.47	68.49
5550.00	4.77	67.19
5850.00	6.57	69.87
6150.00	6.41	68.81
6450.00	7.04	91.97
6750.00	7.74	99.76
7050.00	8.36	85.45
7350.00	11.45	95.72
7650.00	8.98	86.65
7950.00	10.58	90.36
8250.00	9.83	97.53
8550.00	9.91	95.90
8850.00	13.15	93.83

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 12 00 HOURS ON 7/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	191.00	48.90	300.00	-49.8	-257.0
1.00	180.60	46.30	600.00	-5.7	-573.5
1.50	172.40	45.90	900.00	115.9	-864.7
2.00	168.50	44.20	1200.00	246.8	-1209.4
2.50	160.30	43.70	1500.00	530.1	-1477.9
3.00	159.10	42.00	1800.00	714.3	-1867.7
3.50	156.10	45.00	2100.00	852.0	-1920.1
4.00	155.70	47.60	2400.00	903.1	-1997.5
4.50	156.70	52.10	2700.00	832.7	-1930.7
5.00	156.30	56.10	3000.00	811.6	-1846.2
5.50	152.50	60.10	3300.00	877.5	-1683.5
6.00	145.60	63.50	3600.00	1015.3	-1481.3
6.50	134.70	65.80	3900.00	1247.1	-1233.0
7.00	127.40	64.80	4200.00	1571.4	-1200.4
7.50	120.60	64.90	4500.00	1815.8	-1072.9
8.00	115.20	65.10	4800.00	2017.5	-948.4
8.50	108.60	65.00	5100.00	2255.5	-753.2
9.00	103.70	65.00	5400.00	2448.0	-595.9
9.50	100.30	63.70	5700.00	2773.4	-503.1
10.00	97.10	62.60	6000.00	3087.9	-383.6
10.50	94.50	61.40	6300.00	3425.5	-274.5
11.00	93.00	59.80	6600.00	3837.8	-200.0
11.50	91.70	58.50	6900.00	4228.3	-124.2
12.00	90.40	57.30	7200.00	4624.1	-30.9
12.50	90.00	56.20	7500.00	5022.8	1.5
13.00	90.40	55.10	7800.00	5443.3	-36.4
13.50	91.10	54.30	8100.00	5821.6	-110.0
14.00	92.10	53.60	8400.00	6191.2	-225.1

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	5.95	190.95
450.00	7.26	172.05
750.00	7.17	157.33
1050.00	8.38	159.19
1350.00	8.87	133.45
1650.00	9.80	154.68
1950.00	3.35	110.80
2250.00	2.11	146.56
2550.00	2.21	313.43
2850.00	1.98	345.94
3150.00	3.99	22.04
3450.00	5.56	34.28
3750.00	7.72	43.03
4050.00	7.41	84.25
4350.00	6.27	62.45
4650.00	5.39	58.31
4950.00	6.92	51.35
5250.00	5.72	49.86
5550.00	7.69	74.07
5850.00	7.65	69.20
6150.00	8.06	72.09
6450.00	9.52	79.74
6750.00	9.04	79.02
7050.00	9.24	76.73
7350.00	9.09	85.35
7650.00	9.60	95.14
7950.00	8.76	101.01
8250.00	8.80	107.29
8550.00	11.27	105.67

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 17 00 HOURS ON 7/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	168.20	41.70	300.00	69.1	-329.6
1.00	172.40	39.00	600.00	98.4	-734.6
1.50	174.50	40.10	900.00	103.1	-1064.1
2.00	170.10	41.90	1200.00	230.7	-1317.7
2.50	168.80	39.50	1500.00	354.5	-1785.3
3.00	169.70	37.40	1800.00	422.4	-2316.7
3.50	170.30	37.10	2100.00	469.5	-2737.4
4.00	168.50	36.40	2400.00	650.9	-3190.4
4.50	166.90	36.70	2700.00	823.2	-3528.5
5.00	165.90	36.30	3000.00	997.3	-3961.4
5.50	165.00	36.90	3300.00	1140.2	-4245.9
6.00	163.60	35.70	3600.00	1366.5	-4633.7
6.50	161.80	35.20	3900.00	1730.0	-5252.4
7.00	159.60	35.30	4200.00	2051.7	-5567.3
7.50	155.90	34.00	4500.00	2728.0	-6090.1
8.00	154.70	34.10	4800.00	3033.8	-6409.6
8.50	152.30	34.50	5100.00	3453.5	-6570.0
9.00	152.30	35.90	5400.00	3471.8	-6604.8
9.50	152.60	36.70	5700.00	3523.5	-6789.2
10.00	151.90	37.30	6000.00	3714.2	-6947.6
10.50	150.90	37.80	6300.00	3954.5	-7096.5
11.00	150.70	38.40	6600.00	4079.8	-7261.7
11.50	150.10	39.20	6900.00	4222.1	-7334.0
12.00	150.10	39.50	7200.00	4353.8	-7571.6
12.50	150.20	39.90	7500.00	4462.8	-7783.5
13.00	151.30	39.20	7800.00	4598.1	-8388.7
13.50	152.10	39.60	8100.00	4587.1	-8653.1
14.00	153.50	40.60	8400.00	4378.6	-8770.9
14.50	153.90	41.20	8700.00	4377.8	-8924.8
15.00	154.10	42.10	9000.00	4356.5	-8960.3

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	7.65	168.15
450.00	9.23	175.83
750.00	7.49	179.18
1050.00	6.45	153.27
1350.00	10.99	165.15
1650.00	12.18	172.71
1950.00	9.62	173.59
2250.00	11.09	158.15
2550.00	8.62	152.99
2850.00	10.61	158.07
3150.00	7.23	153.33
3450.00	10.21	149.72
3750.00	16.31	149.55
4050.00	10.23	134.38
4350.00	19.43	127.69
4650.00	10.05	136.24
4950.00	10.21	110.90
5250.00	0.89	152.26
5550.00	4.35	164.32
5850.00	5.63	129.72
6150.00	6.43	121.77
6450.00	4.71	142.80
6750.00	3.63	116.93
7050.00	6.23	150.06
7350.00	5.37	153.86
7650.00	14.09	167.38
7950.00	6.01	182.36
8250.00	5.44	240.53
8550.00	3.50	180.26
8850.00	0.94	210.87

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 5 00 HOURS ON 9/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	3.40	49.90	300.00	15.0	252.3
1.00	15.30	42.70	600.00	171.6	627.4
1.50	22.20	38.50	900.00	427.5	1047.9
2.00	21.00	29.20	1200.00	769.5	2005.0
2.50	19.70	22.00	1500.00	1251.5	3496.1
3.00	20.10	19.70	1800.00	1727.7	4722.1
3.50	22.50	18.20	2100.00	2444.3	5902.4
4.00	24.90	17.40	2400.00	3224.5	6948.2
4.50	27.40	16.70	2700.00	4141.7	7991.9
5.00	28.90	16.10	3000.00	5023.2	9101.6
5.50	30.60	15.80	3300.00	5936.6	10040.5
6.00	32.00	15.40	3600.00	6926.1	11086.7
6.50	33.20	15.20	3900.00	7860.2	12014.5
7.00	33.90	15.10	4200.00	8682.1	12923.4
7.50	34.50	14.90	4500.00	9579.5	13941.6
8.00	35.00	14.80	4800.00	10420.6	14885.9
8.50	35.50	14.60	5100.00	11370.1	15944.2
9.00	35.60	14.50	5400.00	12155.3	16982.5
9.50	35.80	14.40	5700.00	12986.5	18010.7
10.00	35.40	14.30	6000.00	13636.1	19192.6
10.50	35.40	14.10	6300.00	14529.6	20450.2
11.00	35.10	13.80	6600.00	15451.1	21990.1
11.50	34.80	13.80	6900.00	16032.8	23073.9
12.00	35.00	13.70	7200.00	16941.4	24200.3

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	5.74	3.40
450.00	9.24	22.66
750.00	11.19	31.32
1050.00	23.10	19.66
1350.00	35.62	17.91
1650.00	29.89	21.22
1950.00	31.38	31.26
2250.00	29.65	36.72
2550.00	31.58	41.30
2850.00	32.21	38.46
3150.00	29.77	44.21
3450.00	32.73	43.40
3750.00	29.92	45.19
4050.00	27.85	42.12
4350.00	30.85	41.39
4650.00	28.74	41.69
4950.00	32.31	41.89
5250.00	29.59	37.09
5550.00	30.05	38.95
5850.00	30.65	23.79
6150.00	35.06	35.39
6450.00	40.78	30.89
6750.00	27.96	28.22
7050.00	32.90	38.37

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 8 00 HOURS ON 8/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	260.70	61.10	300.00	-163.5	-26.9
1.00	280.80	62.40	600.00	-308.3	58.5
1.50	291.00	63.30	900.00	-423.0	161.9
2.00	296.60	64.60	1200.00	-510.0	254.3
2.50	301.30	68.30	1500.00	-510.7	309.8
3.00	307.00	71.60	1800.00	-478.9	360.2
3.50	317.20	74.90	2100.00	-385.8	415.8
4.00	335.40	77.60	2400.00	-220.5	480.1
4.50	358.90	78.10	2700.00	-11.6	569.6
5.00	21.90	78.00	3000.00	238.1	592.4
5.50	36.30	75.10	3300.00	520.3	708.4
6.00	49.70	72.10	3600.00	887.4	752.8
6.50	57.80	68.70	3900.00	1287.4	811.1
7.00	63.10	65.70	4200.00	1692.0	858.3
7.50	66.10	62.70	4500.00	2124.3	941.9
8.00	68.10	60.20	4800.00	2551.6	1026.4
8.50	69.90	58.20	5100.00	2970.6	1087.8
9.00	71.70	56.50	5400.00	3394.5	1123.5
9.50	73.50	54.80	5700.00	3856.5	1143.4
10.00	75.10	53.40	6000.00	4307.5	1147.3
10.50	77.40	52.50	6300.00	4719.2	1056.1
11.00	80.70	52.30	6600.00	5035.6	826.0
11.50	84.50	52.70	6900.00	5233.9	505.4
12.00	87.90	53.40	7200.00	5345.5	197.6

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	3.77	260.62
450.00	3.82	300.51
750.00	3.51	312.01
1050.00	2.89	316.82
1350.00	1.25	359.27
1650.00	1.35	32.23
1950.00	2.47	59.16
2250.00	4.03	68.72
2550.00	5.16	66.80
2850.00	5.70	84.77
3150.00	6.93	67.64
3450.00	8.41	83.10
3750.00	9.19	81.71
4050.00	9.26	83.26
4350.00	10.01	79.11
4650.00	9.90	78.81
4950.00	9.62	81.65
5250.00	9.67	85.18
5550.00	10.51	87.53
5850.00	10.25	89.50
6150.00	9.58	102.47
6450.00	8.89	126.02
6750.00	8.57	143.24
7050.00	7.44	160.00

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 12 00 HOURS ON 8/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	162.10	41.60	300.00	104.1	-321.6
1.00	161.10	41.60	600.00	219.3	-639.4
1.50	163.10	38.60	900.00	328.4	-1078.8
2.00	164.60	37.40	1200.00	417.7	-1513.3
2.50	167.10	38.40	1500.00	423.6	-1845.0
3.00	170.30	41.00	1800.00	350.1	-2041.4
3.50	172.70	44.10	2100.00	276.7	-2149.9
4.00	176.80	47.70	2400.00	123.2	-2181.0
4.50	183.40	49.40	2700.00	-135.9	-2310.9
5.00	188.90	51.60	3000.00	-366.5	-2350.2
5.50	196.10	53.20	3300.00	-683.3	-2373.2
6.00	195.90	56.00	3600.00	-664.0	-2336.7
6.50	195.50	58.60	3900.00	-635.0	-2295.4
7.00	197.90	61.50	4200.00	-699.8	-2171.5
7.50	200.90	63.90	4500.00	-785.5	-2061.1
8.00	203.60	66.30	4800.00	-842.8	-1932.5
8.50	204.60	69.80	5100.00	-780.5	-1707.9
9.00	207.30	74.60	5400.00	-682.0	-1323.5
9.50	214.40	78.20	5700.00	-672.9	-984.3
10.00	224.70	82.00	6000.00	-593.9	-601.0
10.50	239.10	84.30	6300.00	-540.8	-324.3
11.00	245.10	85.30	6600.00	-493.7	-229.6
11.50	250.00	86.90	6900.00	-352.9	-128.8
12.00	229.20	89.80	7200.00	-20.6	-17.8

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	7.68	162.05
450.00	7.68	160.05
750.00	10.29	166.04
1050.00	10.08	168.37
1350.00	7.54	178.96
1650.00	4.77	200.50
1950.00	2.98	214.08
2250.00	3.56	258.51
2550.00	6.59	243.35
2850.00	5.32	260.32
3150.00	7.22	265.82
3450.00	0.94	27.90
3750.00	1.15	35.09
4050.00	3.18	332.33
4350.00	3.18	322.17
4650.00	3.20	335.96
4950.00	5.30	15.48
5250.00	9.02	14.38
5550.00	7.71	1.52
5850.00	8.89	11.66
6150.00	6.40	10.85
6450.00	2.40	26.48
6750.00	3.94	54.37
7050.00	7.96	71.53

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 17 00 HOURS ON 8/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-	HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
0.00	0.00	0.00	0.00	0.0	0.0			
						150.00	12.72	156.95
0.50	157.00	28.20	300.00	218.9	-515.0			
						450.00	17.29	133.23
1.00	143.30	24.90	600.00	773.1	-1036.2			
						750.00	18.62	148.16
1.50	145.20	23.10	900.00	1205.3	-1732.4			
						1050.00	14.56	152.46
2.00	146.90	23.60	1200.00	1501.4	-2300.7			
						1350.00	7.02	159.80
2.50	148.20	26.20	1500.00	1608.0	-2590.6			
						1650.00	3.22	127.53
3.00	147.30	29.50	1800.00	1720.5	-2677.0			
						1950.00	4.33	87.81
3.50	144.40	32.60	2100.00	1913.2	-2669.7			
						2250.00	4.87	90.65
4.00	141.50	35.10	2400.00	2127.6	-2672.2			
						2550.00	5.81	110.07
4.50	139.40	36.60	2700.00	2367.8	-2760.0			
						2850.00	6.85	113.69
5.00	137.50	37.50	3000.00	2643.3	-2882.1			
						3150.00	9.54	213.46
5.50	143.30	39.30	3300.00	2411.7	-3232.3			
						3450.00	7.18	179.59
6.00	145.80	40.00	3600.00	2413.9	-3548.2			
						3750.00	21.44	55.76
6.50	133.40	41.60	3900.00	3193.8	-3017.6			
						4050.00	6.47	64.08
7.00	130.70	42.50	4200.00	3477.2	-2988.2			
						4350.00	7.85	83.66
7.50	127.70	43.00	4500.00	3820.5	-2950.3			
						4650.00	7.49	76.93
8.00	124.80	43.60	4800.00	4141.4	-2875.8			
						4950.00	8.08	80.19
8.50	122.10	43.90	5100.00	4491.9	-2815.3			
						5250.00	8.95	63.33
9.00	118.60	44.40	5400.00	4843.9	-2638.5			
						5550.00	8.64	52.70
9.50	115.10	45.10	5700.00	5146.2	-2408.3			
						5850.00	8.13	52.31
10.00	112.00	45.70	6000.00	5431.2	-2192.0			
						6150.00	8.21	43.92
10.50	108.00	46.40	6300.00	5681.8	-1932.0			
						6450.00	6.62	2.01
11.00	106.10	48.10	6600.00	5692.0	-1640.7			
						6750.00	6.13	72.24
11.50	104.70	48.30	6900.00	5948.9	-1558.5			

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 8 00 HOURS ON 9/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	149.40	43.90	300.00	158.9	-268.3
1.00	129.00	52.00	600.00	364.6	-295.0
1.50	96.90	58.10	900.00	556.4	-67.2
2.00	58.20	45.60	1200.00	964.6	598.3
2.50	44.20	31.20	1500.00	1726.9	1776.3
3.00	41.00	26.90	1800.00	2327.8	2678.6
3.50	39.00	22.80	2100.00	3144.1	3883.6
4.00	36.80	20.80	2400.00	3784.8	5060.6
4.50	35.30	19.60	2700.00	4381.8	6190.1
5.00	35.30	18.80	3000.00	5092.5	7194.2
5.50	36.40	18.50	3300.00	5852.9	7940.7
6.00	37.40	18.30	3600.00	6611.8	8650.1
6.50	38.50	18.20	3900.00	7364.5	9286.0
7.00	39.60	17.90	4200.00	8289.1	10022.4
7.50	40.60	17.70	4500.00	9176.6	10709.4
8.00	41.30	17.50	4800.00	10048.1	11440.6
8.50	41.80	17.30	5100.00	10914.4	12210.5
9.00	42.30	17.00	5400.00	11387.7	13068.1
9.50	42.90	16.80	5700.00	12352.1	13834.5
10.00	43.40	16.60	6000.00	13829.4	14628.4
10.50	43.80	16.30	6300.00	14912.5	15555.1
11.00	44.10	16.00	6600.00	16013.6	16534.7
11.50	44.40	15.80	6900.00	17061.5	17427.7
12.00	44.80	15.60	7200.00	18171.7	18304.4

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	7.09	149.36
450.00	4.71	97.37
750.00	6.77	40.10
1050.00	17.74	31.52
1350.00	31.89	32.90
1650.00	24.64	33.66
1950.00	33.08	34.11
2250.00	30.46	28.56
2550.00	29.04	27.85
2850.00	27.96	35.29
3150.00	24.22	45.52
3450.00	23.61	46.93
3750.00	22.75	50.54
4050.00	26.51	50.85
4350.00	25.51	52.25
4650.00	25.86	50.00
4950.00	26.34	48.37
5250.00	29.48	48.61
5550.00	28.00	51.52
5850.00	28.62	50.91
6150.00	32.40	49.44
6450.00	33.58	48.47
6750.00	31.21	49.42
7050.00	32.15	51.70

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 12 00 HOURS ON 9/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	30.00	22.50	300.00	362.1	627.4
1.00	35.70	22.80	600.00	833.0	1159.5
1.50	38.10	21.80	900.00	1388.5	1771.3
2.00	37.60	22.20	1200.00	1794.2	2330.4
2.50	37.70	24.80	1500.00	1985.3	2569.3
3.00	39.70	25.30	1800.00	2432.5	2930.8
3.50	40.30	25.20	2100.00	2886.6	3404.7
4.00	41.20	24.50	2400.00	3469.1	3963.8
4.50	41.60	24.00	2700.00	4026.5	4536.4
5.00	41.50	23.80	3000.00	4507.3	5096.0
5.50	42.20	23.40	3300.00	5122.7	5651.2
6.00	43.00	23.50	3600.00	5646.9	6057.3
6.50	44.30	23.30	3900.00	6331.4	6428.0
7.00	44.00	22.00	4200.00	7221.6	7480.4
7.50	43.20	20.90	4500.00	8067.4	8593.3
8.00	42.60	20.30	4800.00	8783.7	9554.8
8.50	42.20	19.80	5100.00	9515.9	10497.5

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	16.46	29.99
450.00	16.15	41.50
750.00	18.78	42.24
1050.00	15.70	35.96
1350.00	6.95	38.65
1650.00	13.07	51.05
1950.00	14.92	43.77
2250.00	18.35	46.17
2550.00	18.16	44.22
2850.00	16.77	40.67
3150.00	18.84	47.94
3450.00	15.07	52.23
3750.00	18.70	63.21
4050.00	30.61	33.60
4350.00	31.77	37.23
4650.00	27.25	36.66
4950.00	27.13	37.84

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 17 00 HOURS ON 9/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	52.90	22.40	300.00	580.6	439.2
1.00	47.60	24.50	600.00	972.3	888.1
1.50	47.40	20.40	900.00	1781.5	1638.7
2.00	46.80	17.60	1200.00	2757.8	2590.5
2.50	46.30	16.40	1500.00	3684.8	3522.4
3.00	46.20	14.90	1800.00	4882.9	4683.9
3.50	46.10	14.20	2100.00	5980.2	5756.7
4.00	45.70	13.40	2400.00	7210.3	7038.4
4.50	44.90	13.00	2700.00	8255.5	8286.9
5.00	44.20	12.80	3000.00	9206.2	9469.7
5.50	44.20	12.50	3300.00	10378.0	10675.0
6.00	44.00	12.00	3600.00	11765.7	12187.3
6.50	43.60	11.30	3900.00	13460.3	14138.8
7.00	43.20	10.90	4200.00	14930.8	15904.2
7.50	43.00	10.60	4500.00	16399.7	17591.5
8.00	42.90	10.20	4800.00	18160.5	19548.6
8.50	42.60	9.80	5100.00	19986.1	21740.9
9.00	42.50	9.60	5400.00	21570.2	23546.4
9.50	42.40	9.30	5700.00	23471.9	25712.2
10.00	42.30	9.20	6000.00	24932.3	27408.4
10.50	42.10	9.30	6300.00	25793.5	28554.2
11.00	41.70	9.30	6600.00	26812.3	30101.3
11.50	41.60	9.50	6900.00	27376.6	30843.4
12.00	41.40	9.60	7200.00	28152.4	31941.4

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	16.55	52.88
450.00	13.54	41.11
750.00	25.08	47.15
1050.00	30.99	45.72
1350.00	29.87	44.85
1650.00	37.92	45.88
1950.00	34.88	45.65
2250.00	40.38	43.82
2550.00	37.00	39.93
2850.00	34.49	38.76
3150.00	38.21	44.19
3450.00	46.65	42.54
3750.00	56.74	40.97
4050.00	52.22	39.79
4350.00	50.84	41.04
4650.00	59.83	41.97
4950.00	64.84	39.78
5250.00	54.59	41.26
5550.00	65.51	41.28
5850.00	50.88	40.73
6150.00	32.57	36.91
6450.00	42.11	33.35
6750.00	21.18	37.26
7050.00	30.56	35.24

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 5 00 HOURS ON 10/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	44.90	83.00	300.00	26.1	26.2
1.00	231.60	89.90	600.00	-1.0	-0.8
1.50	106.30	80.50	900.00	144.8	-42.3
2.00	105.30	87.50	1200.00	50.9	-13.9
2.50	999.00	999.00	1500.00	999.0	999.0
3.00	999.00	999.00	1800.00	999.0	999.0
3.50	39.40	51.80	2100.00	1049.1	1277.6
4.00	41.80	44.60	2400.00	1622.4	1815.1
4.50	47.90	40.90	2700.00	2313.0	2090.6
5.00	51.80	47.50	3000.00	2160.7	1700.9
5.50	57.20	43.50	3300.00	2923.5	1884.9
6.00	60.70	41.40	3600.00	3561.6	1999.6
6.50	64.20	38.80	3900.00	4367.8	2112.6
7.00	66.80	36.90	4200.00	5142.3	2205.4
7.50	68.80	35.20	4500.00	5948.4	2308.8
8.00	70.50	33.80	4800.00	6760.0	2395.6
8.50	71.80	32.70	5100.00	7547.3	2483.6
9.00	72.60	32.00	5400.00	8247.7	2586.8
9.50	72.30	30.90	5700.00	9074.6	2898.4

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	0.84	44.89
450.00	0.87	225.08
750.00	3.44	105.89
1050.00	2.23	286.79
1350.00	999.00	999.00
1650.00	999.00	999.00
1950.00	999.00	999.00
2250.00	17.86	46.84
2550.00	16.90	68.24
2850.00	9.51	201.33
3150.00	17.83	76.43
3450.00	14.73	79.80
3750.00	18.50	82.01
4050.00	17.73	83.16
4350.00	18.47	82.68
4650.00	18.55	83.39
4950.00	18.02	83.62
5250.00	16.08	81.60
5550.00	20.08	69.34

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 8 00 HOURS ON 10/10/74

IME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	357.10	34.10	300.00	-22.9	442.6
1.00	353.10	36.60	600.00	-98.0	802.1
1.50	354.90	40.30	900.00	-95.6	1057.2
2.00	357.20	42.70	1200.00	-65.1	1299.2
2.50	359.60	43.30	1500.00	-13.0	1592.2
3.00	2.80	41.30	1800.00	100.1	2047.0
3.50	9.70	38.70	2100.00	441.7	2584.4
4.00	14.80	35.90	2400.00	847.0	3206.3
4.50	18.30	32.80	2700.00	1315.6	3978.7
5.00	21.00	30.40	3000.00	1832.6	4775.0
5.50	21.90	29.10	3300.00	2211.5	5502.5
6.00	22.40	28.10	3600.00	2569.4	6235.0
6.50	22.80	27.40	3900.00	2915.7	6937.7
7.00	23.80	26.90	4200.00	3341.0	7576.6
7.50	25.00	26.60	4500.00	3797.9	8146.4
8.00	26.40	26.40	4800.00	4299.6	8663.4

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	10.07	357.00
450.00	8.35	348.17
750.00	5.80	0.54
1050.00	5.54	7.19
1350.00	6.76	10.08
1650.00	10.65	13.96
1950.00	14.47	32.44
2250.00	16.87	33.09
2550.00	20.53	31.24
2850.00	21.58	32.99
3150.00	18.64	27.51
3450.00	18.53	26.03
3750.00	17.80	26.24
4050.00	17.44	33.64
4350.00	16.60	38.72
4650.00	16.37	44.14

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 12 00 HOURS ON 10/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	289.90	79.00	300.00	-54.9	19.8
1.00	347.60	70.80	600.00	-45.1	204.2
1.50	3.50	64.70	900.00	26.0	424.9
2.00	12.20	61.20	1200.00	139.5	645.1
2.50	12.50	56.50	1500.00	214.9	969.7
3.00	15.50	53.80	1800.00	352.1	1270.0
3.50	19.40	50.30	2100.00	579.2	1645.1
4.00	21.10	46.60	2400.00	817.1	2118.1
4.50	21.90	43.40	2700.00	1065.1	2650.0
5.00	21.50	40.90	3000.00	1269.4	3223.3
5.50	21.80	39.20	3300.00	1502.8	3757.9
6.00	21.80	38.10	3600.00	1705.2	4264.1
6.50	22.30	37.30	3900.00	1942.8	4737.9
7.00	23.70	36.30	4200.00	2298.3	5236.9
7.50	24.30	35.60	4500.00	2586.8	5730.3
8.00	26.90	34.70	4800.00	3136.5	6183.8
8.50	29.20	33.80	5100.00	3716.9	6652.1
9.00	31.20	32.70	5400.00	4357.6	7196.9
9.50	33.10	31.90	5700.00	5001.2	7673.7
10.00	35.00	31.20	6000.00	5682.9	8118.0
10.50	37.00	30.00	6300.00	6567.4	8717.4

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	1.33	289.82
450.00	4.20	3.04
750.00	5.27	17.86
1050.00	5.63	27.25
1350.00	7.57	13.09
1650.00	7.50	24.55
1950.00	9.96	31.19
2250.00	12.03	26.70
2550.00	13.34	24.99
2850.00	13.83	19.62
3150.00	13.26	23.58
3450.00	12.39	21.79
3750.00	12.05	26.63
4050.00	13.92	35.47
4350.00	12.99	30.31
4650.00	16.20	50.47
4950.00	16.95	51.09
5250.00	19.11	49.62
5550.00	18.20	53.47
5850.00	18.49	56.90
6150.00	24.28	55.67

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 17 00 HOURS ON 10/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	37.90	24.20	300.00	410.1	526.9
1.00	41.40	22.80	600.00	944.0	1071.0
1.50	45.40	24.90	900.00	1380.6	1361.9
2.00	48.00	26.50	1200.00	1788.8	1611.1
2.50	50.80	28.70	1500.00	2123.4	1732.4
3.00	53.60	30.00	1800.00	2509.7	1851.0
3.50	55.50	30.10	2100.00	2985.9	2052.9
4.00	54.90	30.90	2400.00	3281.2	2307.0
4.50	53.70	31.80	2700.00	3509.9	2579.2
5.00	52.00	32.30	3000.00	3739.9	2923.0
5.50	50.60	33.10	3300.00	3912.1	3214.5
6.00	49.10	34.80	3600.00	3915.5	3392.8
6.50	47.10	33.90	3900.00	4252.0	3952.4
7.00	45.60	34.00	4200.00	4449.3	4358.3
7.50	44.70	34.20	4500.00	4658.0	4708.4
8.00	44.40	33.90	4800.00	4998.3	5105.5
8.50	44.40	33.60	5100.00	5371.2	5486.5
9.00	44.60	33.20	5400.00	5794.7	5877.9
9.50	44.90	33.10	5700.00	6172.5	6195.9

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	15.17	37.89
450.00	17.33	44.45
750.00	11.92	56.33
1050.00	10.87	58.58
1350.00	8.09	70.07
1650.00	9.18	72.93
1950.00	11.76	67.01
2250.00	8.85	49.30
2550.00	8.08	40.02
2850.00	9.40	33.78
3150.00	7.70	30.56
3450.00	4.05	1.09
3750.00	14.84	31.01
4050.00	10.26	25.92
4350.00	9.26	30.80
4650.00	11.89	40.59
4950.00	12.12	44.39
5250.00	13.11	47.25
5550.00	11.22	49.91

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 5 00 HOURS ON 11/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	252.20	73.40	300.00	-85.2	-27.4
1.00	999.00	999.00	600.00	999.0	999.0
1.50	180.20	55.80	900.00	-1.8	-611.9
2.00	178.40	46.70	1200.00	32.2	-1130.7
2.50	175.60	40.10	1500.00	106.7	-1778.6
3.00	177.90	37.00	1800.00	89.0	-2387.6
3.50	176.40	36.80	2100.00	177.9	-2802.2
4.00	179.70	36.90	2400.00	18.6	-3197.3
4.50	182.70	36.70	2700.00	-168.5	-3519.3
5.00	186.60	36.10	3000.00	-470.5	-4088.1
5.50	190.30	36.30	3300.00	-800.7	-4421.6
6.00	194.10	36.90	3600.00	-1165.4	-4652.2
6.50	198.70	37.80	3900.00	-1609.3	-4764.7
7.00	202.60	40.40	4200.00	-1894.0	-4558.5

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	2.03	252.13
450.00	999.00	999.00
750.00	999.00	999.00
1050.00	11.82	176.23
1350.00	14.82	173.43
1650.00	13.85	181.65
1950.00	9.64	167.87
2250.00	9.68	201.94
2550.00	10.49	203.89
2850.00	12.67	212.77
3150.00	10.67	224.69
3450.00	9.81	237.67
3750.00	10.41	255.75
4050.00	7.99	305.89

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                             UPPER-AIR PILOT BALLOON SOUNDING
                         FOR TRACT C-B  AT  8 00 HOURS ON 11/10/74

TIME INTO  AZIMUTH  ELEVATION  HEIGHT      X       Y          HEIGHT    VELOCITY   HEADING
 FLIGHT    -DEG.-    -DEG.-    -FEET-   -FEET-  -FEET-        -FEET-     -MPH-     -DEG.-
-MINUTES-

   0.00      0.00      0.00      0.00      0.0     0.0
                                                              150.00      1.60      23.59
   0.50     23.60     76.80    300.00     28.2    64.6
                                                              450.00      2.28     210.24
   1.00    225.30     87.00    600.00    -22.5   -22.3
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UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 12 00 HOURS ON 13/10/74

IME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	161.30	31.40	300.00	157.9	-465.6
1.00	159.40	37.80	600.00	272.6	-724.1
1.50	163.40	39.30	900.00	314.8	-1053.9
2.00	166.40	38.80	1200.00	351.8	-1450.8
2.50	166.80	39.30	1500.00	419.6	-1784.5
3.00	170.00	39.00	1800.00	387.3	-2189.4
3.50	999.00	999.00	2100.00	999.0	999.0
4.00	171.30	39.20	2400.00	446.9	-2909.3
4.50	168.40	40.10	2700.00	646.6	-3141.3
5.00	168.70	42.60	3000.00	641.2	-3199.8
5.50	169.10	44.40	3300.00	639.3	-3309.7
6.00	171.20	46.70	3600.00	521.0	-3353.3
6.50	168.90	48.60	3900.00	664.0	-3374.7
7.00	171.00	46.80	4200.00	619.4	-3896.4
7.50	173.10	45.50	4500.00	533.9	-4391.1
8.00	174.80	43.70	4800.00	458.3	-5003.4
8.50	175.50	42.80	5100.00	435.4	-5491.8
9.00	176.20	41.90	5400.00	402.5	-6006.6
9.50	176.90	41.20	5700.00	356.0	-6503.1
10.00	176.89	40.74	6000.00	382.1	-6957.2
10.50	176.81	39.60	6300.00	428.3	-7605.4
11.00	176.90	38.58	6600.00	452.4	-8263.4
11.50	176.11	37.59	6900.00	613.4	-8944.3
12.00	175.82	36.73	7200.00	709.1	-9625.3
12.50	176.60	36.45	7500.00	608.3	-10138.5
13.00	178.32	36.28	7800.00	317.8	-10624.1
13.50	180.59	36.93	8100.00	-104.6	-10778.6
14.00	182.55	35.12	8400.00	-524.3	-11934.5
14.50	184.20	34.20	8700.00	-930.0	-12770.9
15.00	185.18	33.13	9000.00	-1237.0	-13737.9

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	11.17	161.25
450.00	6.43	156.05
750.00	7.56	172.69
1050.00	9.06	174.65
1350.00	7.74	168.51
1650.00	9.23	184.54
1950.00	999.00	999.00
2250.00	999.00	999.00
2550.00	6.96	139.26
2850.00	1.33	185.28
3150.00	2.50	181.01
3450.00	2.86	249.72
3750.00	3.29	98.52
4050.00	11.90	184.88
4350.00	11.41	189.78
4650.00	14.02	187.03
4950.00	11.11	182.66
5250.00	11.72	183.64
5550.00	11.33	185.33
5850.00	10.34	176.70
6150.00	14.77	175.90
6450.00	14.96	177.89
6750.00	15.90	166.68
7050.00	15.63	171.99
7350.00	11.89	191.09
7650.00	12.86	210.86
7950.00	10.22	249.88
8250.00	27.95	199.74
8550.00	21.13	205.86
8850.00	23.06	197.59

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 17 00 HOURS ON 13/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-	HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
0.00	0.00	0.00	0.00	0.0	0.0			
						150.00	8.45	180.05
0.50	180.10	38.90	300.00	-0.4	-371.9			
						450.00	7.75	158.30
1.00	169.70	40.60	600.00	125.6	-688.9			
						750.00	9.14	157.02
1.50	165.10	39.40	900.00	282.4	-1059.0			
						1050.00	8.92	153.27
2.00	162.00	39.00	1200.00	458.8	-1409.5			
						1350.00	7.31	146.71
2.50	159.30	39.90	1500.00	635.2	-1673.3			
						1650.00	5.89	128.15
3.00	155.50	41.70	1800.00	839.0	-1838.5			
						1950.00	6.44	145.66
3.50	154.30	42.40	2100.00	998.7	-2072.4			
						2250.00	3.87	145.52
4.00	153.70	44.20	2400.00	1094.9	-2212.6			
						2550.00	6.17	147.59
4.50	153.10	44.60	2700.00	1240.5	-2441.8			
						2850.00	5.31	145.79
5.00	152.55	45.29	3000.00	1371.6	-2635.0			
						3150.00	10.55	159.82
5.50	153.52	43.89	3300.00	1531.6	-3070.6			
						3450.00	14.46	166.19
6.00	155.50	41.61	3600.00	1683.3	-3638.5			
						3750.00	14.09	158.00
6.50	155.85	39.69	3900.00	1925.3	-4238.1			
						4050.00	14.20	154.01
7.00	155.71	38.27	4200.00	2193.0	-4852.7			
						4350.00	11.79	159.50
7.50	156.05	37.61	4500.00	2374.5	-5338.5			
						4650.00	13.83	173.70
8.00	157.70	36.77	4800.00	2441.1	-5943.1			
						4950.00	13.68	173.45
8.50	159.04	36.06	5100.00	2509.5	-6541.0			
						5250.00	15.40	176.73
9.00	160.59	35.21	5400.00	2547.5	-7217.7			
						5550.00	16.79	179.07
9.50	162.20	34.30	5700.00	2559.2	-7956.4			
						5850.00	22.32	176.52
10.00	163.70	32.80	6000.00	2618.5	-8935.7			
						6150.00	15.90	168.73
10.50	164.09	32.08	6300.00	2761.1	-9565.6			
						6450.00	20.43	171.35
11.00	164.69	31.09	6600.00	2896.4	-10557.7			
						6750.00	20.72	168.02
11.50	164.95	30.20	6900.00	3085.5	-11449.7			
						7050.00	20.76	168.12
12.00	165.18	29.42	7200.00	3273.2	-12343.6			
						7350.00	21.05	166.76
12.50	165.29	28.71	7500.00	3435.1	-13245.6			
						7650.00	19.69	163.73
13.00	165.20	28.13	7800.00	3727.6	-14077.2			
						8100.00	23.32	156.71
14.00	164.59	26.78	8400.00	4438.3	-16030.8			
						8550.00	25.52	154.55
14.50	163.76	26.11	8700.00	4968.5	-17045.5			
						8850.00	22.78	155.10
15.00	163.32	25.65	9000.00	5590.4	-17754.8			
						9150.00	26.73	152.90
15.50	162.67	24.95	9300.00	5905.8	-19032.9			

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 5.00 HOURS ON 14/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	140.30	42.50	300.00	209.3	-251.9
1.00	150.40	39.50	600.00	359.9	-632.9
1.50	157.40	36.50	900.00	468.1	-1122.9
2.00	160.90	34.80	1200.00	566.0	-1631.6
2.50	165.90	35.90	1500.00	506.0	-2010.0
3.00	170.20	37.20	1800.00	405.0	-2337.2
3.50	169.10	36.10	2100.00	546.3	-2828.3
4.00	170.10	32.90	2400.00	640.0	-3655.1
4.50	170.30	30.90	2700.00	762.8	-4447.5
5.00	173.20	28.70	3000.00	652.1	-5441.9
5.50	175.00	27.00	3300.00	568.3	-6453.1
6.50	176.60	24.60	3900.00	510.2	-8504.9
6.50	177.30	22.90	3900.00	440.4	-9224.0
7.00	178.10	21.50	4200.00	359.8	-10658.5
7.50	178.30	19.80	4500.00	378.2	-12496.1
8.00	178.40	18.80	4800.00	402.1	-14097.0
8.50	178.50	18.10	5100.00	417.7	-15601.0
9.00	178.70	17.40	5400.00	401.2	-17230.2
9.50	178.80	16.70	5700.00	409.2	-18998.5
10.00	178.70	16.20	6000.00	480.8	-20650.6
10.50	178.60	15.70	6300.00	560.9	-22410.4
11.00	178.90	15.10	6600.00	484.1	-24460.7

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	7.44	140.26
450.00	9.31	158.41
750.00	11.41	167.53
1050.00	11.77	169.09
1350.00	8.71	188.98
1650.00	7.78	197.13
1950.00	11.61	163.94
2250.00	18.91	173.51
2550.00	18.22	171.16
2850.00	22.74	186.34
3150.00	23.06	184.72
3600.00	23.33	181.60
3900.00	8.21	185.53
4050.00	32.65	183.20
4350.00	41.77	179.41
4650.00	36.39	179.13
4950.00	34.18	179.39
5250.00	37.03	180.56
5550.00	40.19	179.72
5850.00	37.58	177.50
6150.00	40.04	177.38
6450.00	46.63	182.13

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                         UPPER-AIR PILOT BALLOON SOUNDING
                      FOR TRACT C-B  AT  8 00 HOURS ON 14/10/74

TIME INTO  AZIMUTH  ELEVATION  HEIGHT     X       Y         HEIGHT    VELOCITY  HEADING
 FLIGHT    -DEG.-    -DEG.-    -FEET-  -FEET-  -FEET-       -FEET-    -MPH-     -DEG.-
-MINUTES-

   0.00      0.00      0.00      0.00     0.0     0.0
                                                            150.00      3.75     57.80
   0.50     57.90     61.20    300.00   139.8    87.7
                                                            450.00      3.05    136.21
   1.00     92.30     63.80    600.00   232.7    -9.3
                                                            750.00      2.11    150.35
   1.50    107.90     72.00    900.00   278.5   -89.9
                                                           1050.00      1.88    245.68
   2.00    121.40     78.80   1200.00   203.1  -123.9
                                                           1350.00      3.28    242.04
   2.50    158.50     82.20   1500.00    75.6  -191.5
                                                           1650.00     15.72    217.53
   3.00    205.10     65.60   1800.00  -346.1  -740.1
                                                           1950.00     17.69    208.52
   3.50    206.80     52.80   2100.00  -718.0 -1423.8
                                                           2250.00     21.28    202.96
   4.00    205.40     43.50   2400.00 -1083.6 -2286.0
                                                           2550.00     22.21    204.98
   4.50    205.30     37.60   2700.00 -1498.6 -3171.6
                                                           2850.00     21.81    202.45
   5.00    204.70     33.90   3000.00 -1863.3 -4058.2
                                                           3300.00     26.39    196.45
   6.00    201.90     28.00   3600.00 -2521.7 -6285.1
                                                           3750.00     28.59    187.72
   6.50    199.70     26.00   3900.00 -2691.1 -7531.6
                                                           4050.00     29.16    188.75
   7.00    198.20     24.40   4200.00 -2886.7 -8799.4
                                                           4350.00     31.08    186.44
   7.50    196.70     23.00   4500.00 -3040.5-10158.3
                                                           4650.00     32.71    182.32
   8.00    195.00     21.80   4800.00 -3099.3-11596.3
                                                           4950.00     33.38    180.16
   8.50    193.40     20.80   5100.00 -3103.7-13065.0
                                                           5250.00     36.20    183.89
   9.00    192.40     19.80   5400.00 -3212.2-14654.2
                                                           5550.00     38.37    179.42
   9.50    191.10     18.90   5700.00 -3195.5-16342.2
                                                           5850.00     35.12    175.60
  10.00    189.80     18.30   6000.00 -3077.4-17883.1
                                                           6150.00     37.62    174.05
  10.50    188.50     17.70   6300.00 -2906.3-19529.4
                                                           6450.00     33.59    176.90
  11.00    187.70     17.30   6600.00 -2826.6-21005.0
                                                           6750.00     31.77    177.91
  11.50    187.10     17.00   6900.00 -2776.3-22402.0
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UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 12 00 HOURS ON 14/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	173.90	59.00	300.00	19.3	-179.3
1.00	177.20	60.80	600.00	16.6	-335.1
1.50	181.60	62.00	900.00	-13.1	-478.6
2.00	191.40	61.40	1200.00	-129.0	-641.7
2.50	199.50	59.50	1500.00	-294.5	-833.5
3.00	204.20	56.60	1800.00	-486.0	-1083.3
3.50	208.30	53.10	2100.00	-746.8	-1389.3
4.00	210.40	47.50	2400.00	-1111.9	-1898.2
4.50	210.40	45.40	2700.00	-1346.2	-2298.1
5.00	208.10	41.80	3000.00	-1578.8	-2961.7
5.50	204.40	38.50	3300.00	-1711.7	-3780.3
6.00	200.20	35.80	3600.00	-1720.9	-4686.8
6.50	196.50	33.50	3900.00	-1670.2	-5652.0
7.00	193.40	31.50	4200.00	-1584.5	-6669.8
7.50	190.90	29.40	4500.00	-1505.6	-7844.9
8.00	189.40	28.00	4800.00	-1469.2	-8909.2
8.50	187.90	26.70	5100.00	-1387.8	-10047.0
9.00	187.50	25.50	5400.00	-1471.1	-11227.8
9.50	186.80	24.60	5700.00	-1466.8	-12365.8
10.00	186.30	24.00	6000.00	-1470.9	-13398.6
10.50	186.00	23.00	6300.00	-1542.7	-14764.6
11.00	185.90	22.00	6600.00	-1669.6	-16253.4
11.50	186.00	21.20	6900.00	-1849.0	-17696.6
12.00	186.10	20.60	7200.00	-2024.3	-19052.0
12.50	186.40	20.00	7500.00	-2284.8	-20483.3
13.00	186.30	19.60	7800.00	-2390.3	-21778.5
13.50	186.30	19.20	8100.00	-2558.7	-23125.8
14.00	186.50	18.90	8400.00	-2763.0	-24383.3

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	4.10	173.85
450.00	3.54	180.97
750.00	3.33	191.66
1050.00	4.55	215.37
1350.00	5.76	220.79
1650.00	7.15	217.44
1950.00	9.14	220.43
2250.00	14.23	215.63
2550.00	10.53	210.34
2850.00	15.98	199.30
3150.00	18.85	189.21
3450.00	20.60	180.56
3750.00	21.97	176.98
4050.00	23.21	175.17
4350.00	26.77	176.14
4650.00	24.20	178.03
4950.00	25.93	175.89
5250.00	26.90	184.02
5550.00	25.86	179.77
5850.00	23.47	180.21
6150.00	31.09	182.99
6450.00	33.96	184.85
6750.00	33.05	187.07
7050.00	31.06	187.35
7350.00	33.06	190.30
7650.00	29.54	184.66
7950.00	30.80	186.25
8250.00	29.03	190.09
8550.00	37.29	196.05

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 17 00 HOURS ON 14/10/77.

ME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	146.30	49.90	300.00	140.3	-210.2
1.00	141.20	52.00	600.00	294.0	-365.3
1.50	141.70	54.50	900.00	398.3	-503.8
2.00	143.80	55.10	1200.00	494.9	-675.6
2.50	149.20	54.60	1500.00	546.5	-915.7
3.00	151.70	49.70	1800.00	724.6	-1344.1
3.50	154.30	46.50	2100.00	865.4	-1795.8
4.00	156.50	44.30	2400.00	982.1	-2255.5
4.50	158.20	42.30	2700.00	1103.7	-2755.3
5.00	159.60	40.20	3000.00	1239.5	-3327.6
5.50	161.30	37.90	3300.00	1361.6	-4015.6
6.00	162.60	36.00	3600.00	1484.6	-4728.6
6.50	163.20	34.70	3900.00	1631.2	-5392.4
7.00	163.60	33.80	4200.00	1775.0	-6019.1
7.50	164.60	33.10	4500.00	1837.2	-6655.7
8.00	166.20	32.10	4800.00	1829.7	-7431.7
8.50	167.40	31.10	5100.00	1849.2	-8251.6
9.00	168.50	30.20	5400.00	1855.2	-9092.9
9.50	169.80	28.70	5700.00	1849.8	-10248.0
10.00	170.60	27.60	6000.00	1881.3	-11324.3
10.50	171.00	26.70	6300.00	1966.9	-12373.5
11.00	171.30	26.00	6600.00	2054.9	-13378.0
11.50	171.30	25.40	6900.00	2206.6	-14366.0
12.00	171.50	25.10	7200.00	2281.0	-15203.5
12.50	171.60	24.80	7500.00	2380.7	-16059.4
13.00	171.62	24.55	7800.00	2498.7	-16895.9
13.50	171.95	24.25	8100.00	2528.7	-17806.5
14.00	172.53	23.92	8400.00	2473.3	-18779.7
14.50	173.50	23.62	8700.00	2263.0	-19769.6
15.00	174.81	23.21	9000.00	1911.0	-20905.7

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	5.74	146.26
450.00	4.96	155.26
750.00	3.94	143.01
1050.00	4.48	150.61
1350.00	5.58	167.86
1650.00	10.54	157.41
1950.00	10.75	162.67
2250.00	10.78	165.74
2550.00	11.69	166.31
2850.00	13.37	166.63
3150.00	15.86	169.92
3450.00	16.45	170.19
3750.00	15.45	167.53
4050.00	14.61	157.06
4350.00	14.54	174.41
4650.00	17.64	180.53
4950.00	18.64	178.62
5250.00	19.12	179.57
5550.00	26.25	180.25
5850.00	24.47	178.31
6150.00	23.93	175.32
6450.00	22.92	174.98
6750.00	22.72	171.25
7050.00	19.11	174.91
7350.00	19.59	173.33
7650.00	19.20	171.95
7950.00	20.71	178.10
8250.00	22.15	183.24
8550.00	23.00	191.92
8850.00	27.04	197.24

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 8 00 HOURS ON 15/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	205.00	38.00	300.00	-162.1	-348.2
1.00	204.50	41.70	600.00	-278.9	-613.1
1.50	206.40	46.10	900.00	-384.7	-776.3
2.00	205.50	49.50	1200.00	-440.7	-925.7
2.50	204.20	51.10	1500.00	-495.6	-1104.7
3.00	197.00	52.20	1800.00	-407.5	-1336.0
3.50	192.30	54.70	2100.00	-316.0	-1453.5
4.00	191.50	61.40	2400.00	-260.2	-1283.0
4.50	185.30	65.60	2700.00	-112.5	-1220.3
5.00	173.70	68.80	3000.00	128.4	-1157.3
5.50	154.90	69.70	3300.00	518.8	-1105.9
6.00	138.20	68.80	3600.00	931.8	-1041.2
6.50	127.06	66.03	3900.00	1384.9	-1045.0
7.00	122.11	62.51	4200.00	1852.5	-1161.5
7.50	123.09	59.02	4500.00	2265.1	-1474.8
8.00	125.50	54.72	4800.00	2766.7	-1971.7
8.50	123.42	51.02	5100.00	3446.7	-2272.4
9.00	127.81	46.96	5400.00	3986.5	-3090.6
9.50	130.11	43.01	5700.00	4676.3	-3935.8
10.00	133.28	40.13	6000.00	5185.3	-4878.6
10.50	135.12	38.01	6300.00	5691.9	-5710.7
11.00	138.40	36.02	6600.00	6031.4	-6787.0
11.50	140.91	34.51	6900.00	6333.1	-7788.3
12.00	143.19	33.09	7200.00	6625.9	-8845.1
12.50	144.99	31.58	7500.00	7006.1	-9991.9
13.00	146.18	29.83	7800.00	7563.1	-11277.4
13.50	146.63	28.57	8100.00	8139.7	-12421.4
14.00	145.85	27.21	8400.00	8942.5	-13677.2
14.50	147.15	26.12	8700.00	9634.0	-14904.5
15.00	147.56	27.21	9000.00	9399.0	-14771.7

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	8.73	204.94
450.00	6.58	203.78
750.00	4.42	212.94
1050.00	3.63	200.55
1350.00	4.26	197.01
1650.00	5.62	159.13
1950.00	3.39	142.08
2250.00	4.08	18.11
2550.00	3.65	66.99
2850.00	5.66	75.33
3150.00	8.95	82.50
3450.00	9.50	81.09
3750.00	10.30	90.47
4050.00	10.95	103.98
4350.00	11.77	127.19
4650.00	16.05	134.73
4950.00	16.90	113.84
5250.00	22.28	146.57
5550.00	24.79	140.76
5850.00	24.35	151.62
6150.00	22.14	148.65
6450.00	25.65	162.48
6750.00	23.77	163.21
7050.00	24.92	164.50
7350.00	27.46	161.64
7650.00	31.84	156.56
7950.00	29.65	151.28
8250.00	33.28	149.04
8550.00	32.02	150.59
8850.00	6.13	299.44

UPPER-AIR PILOT BALLOON SOUNDING
FOR TRACT C-B AT 12 00 HOURS ON 15/10/74

TIME INTO FLIGHT -MINUTES-	AZIMUTH -DEG.-	ELEVATION -DEG.-	HEIGHT -FEET-	X -FEET-	Y -FEET-
0.00	0.00	0.00	0.00	0.0	0.0
0.50	215.20	53.10	300.00	-133.0	-181.9
1.00	196.40	53.10	600.00	-127.0	-432.4
1.50	180.50	52.10	900.00	-5.7	-700.9
2.00	165.70	51.30	1200.00	233.8	-915.2
2.50	160.60	50.40	1500.00	412.9	-1170.6
3.00	157.60	49.70	1800.00	582.6	-1411.5
3.50	157.30	50.40	2100.00	671.5	-1602.9
4.00	151.60	50.00	2400.00	959.0	-1771.6
4.50	163.20	49.80	2700.00	660.9	-2184.7
5.00	164.50	49.60	3000.00	683.9	-2460.8
5.50	164.30	48.80	3300.00	783.5	-2781.6
6.00	167.00	47.60	3600.00	741.5	-3203.6
6.50	159.10	45.30	3900.00	1379.1	-3605.8
7.00	154.62	42.79	4200.00	1947.4	-4099.4
7.50	151.01	40.25	4500.00	2579.3	-4649.6
8.00	148.23	37.71	4800.00	3272.1	-5277.8
8.50	144.55	35.13	5100.00	4207.9	-5904.2
9.00	142.43	33.11	5400.00	5053.1	-6562.3
9.50	141.18	31.20	5700.00	5904.8	-7331.9
10.00	140.79	29.12	6000.00	6814.5	-8344.5
10.50	140.91	27.58	6300.00	7611.0	-9359.8
11.00	141.29	26.46	6600.00	8299.6	-10346.0
11.50	141.82	25.59	6900.00	8913.2	-11323.9
12.00	142.35	24.81	7200.00	9521.7	-12329.9
12.50	143.03	24.26	7500.00	10016.6	-13293.9
13.00	143.41	23.79	7800.00	10555.7	-14204.4
13.50	144.15	23.02	8100.00	11174.7	-15450.2
14.00	144.22	22.73	8400.00	11733.7	-16264.9
14.50	144.62	22.02	8700.00	12466.1	-17536.6
15.00	145.28	21.25	9000.00	13193.6	-19020.3

HEIGHT -FEET-	VELOCITY -MPH-	HEADING -DEG.-
150.00	5.12	216.14
450.00	5.69	178.61
750.00	6.69	155.68
1050.00	7.31	131.82
1350.00	7.09	144.94
1650.00	6.70	144.82
1950.00	4.80	155.08
2250.00	7.58	120.39
2550.00	11.58	215.80
2850.00	6.30	175.22
3150.00	7.64	162.73
3450.00	9.64	185.67
3750.00	17.13	122.25
4050.00	17.11	130.97
4350.00	19.04	131.03
4650.00	21.26	132.19
4950.00	25.59	123.79
5250.00	24.35	127.89
5550.00	26.09	132.09
5850.00	30.94	138.05
6150.00	29.33	141.87
6450.00	27.34	145.06
6750.00	26.24	147.88
7050.00	26.72	148.82
7350.00	24.63	152.81
7650.00	24.05	149.36
7950.00	31.62	153.56
8250.00	22.45	145.55
8550.00	33.36	150.05
8850.00	37.55	153.06

APPENDIX B

Temperature Soundings over Federal Oil Shale Tract C-b During the Period 1 October through 15 October 1974

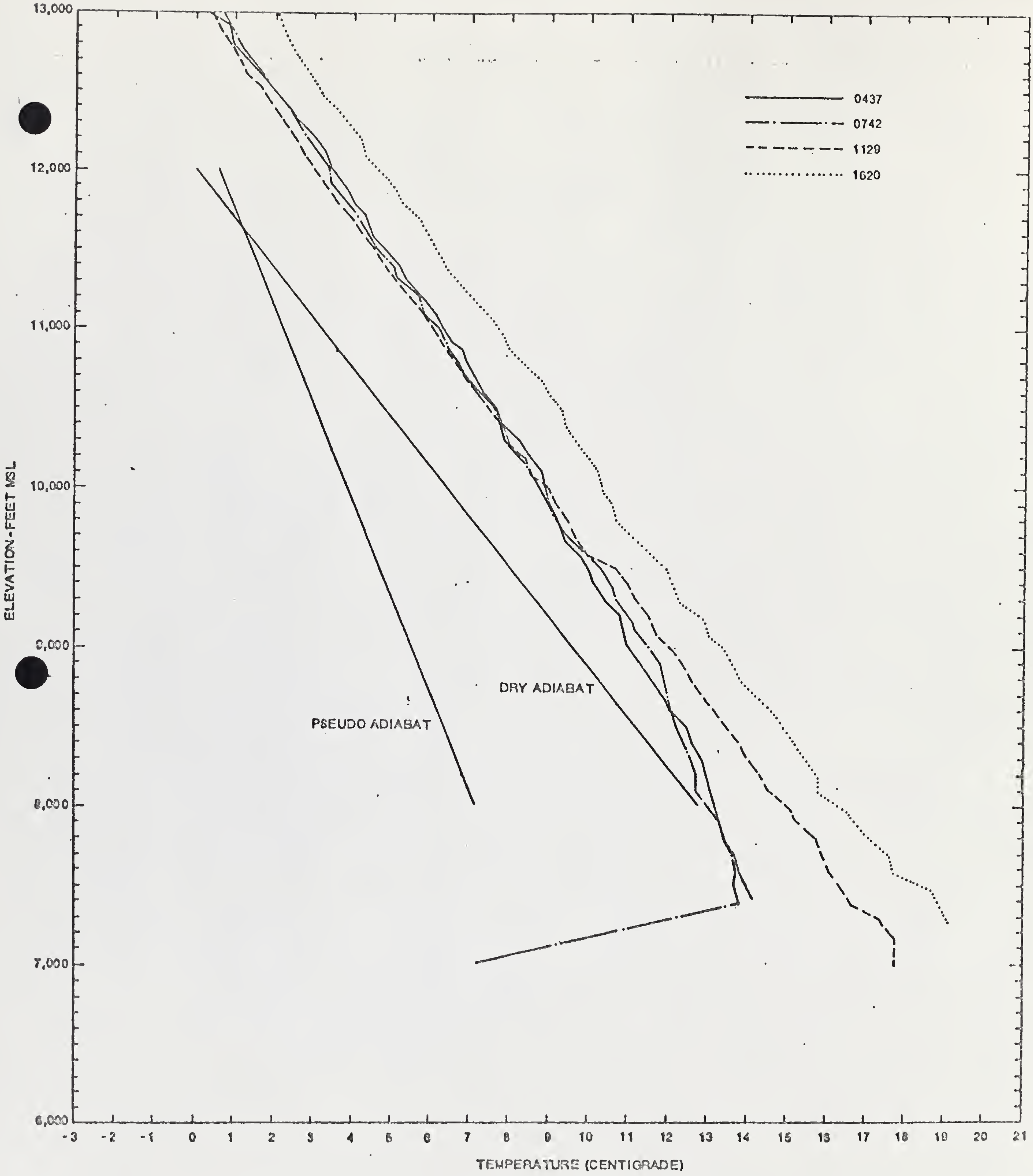


Figure B-1. Temperature Soundings Over Tract C-b on 1 October 1974

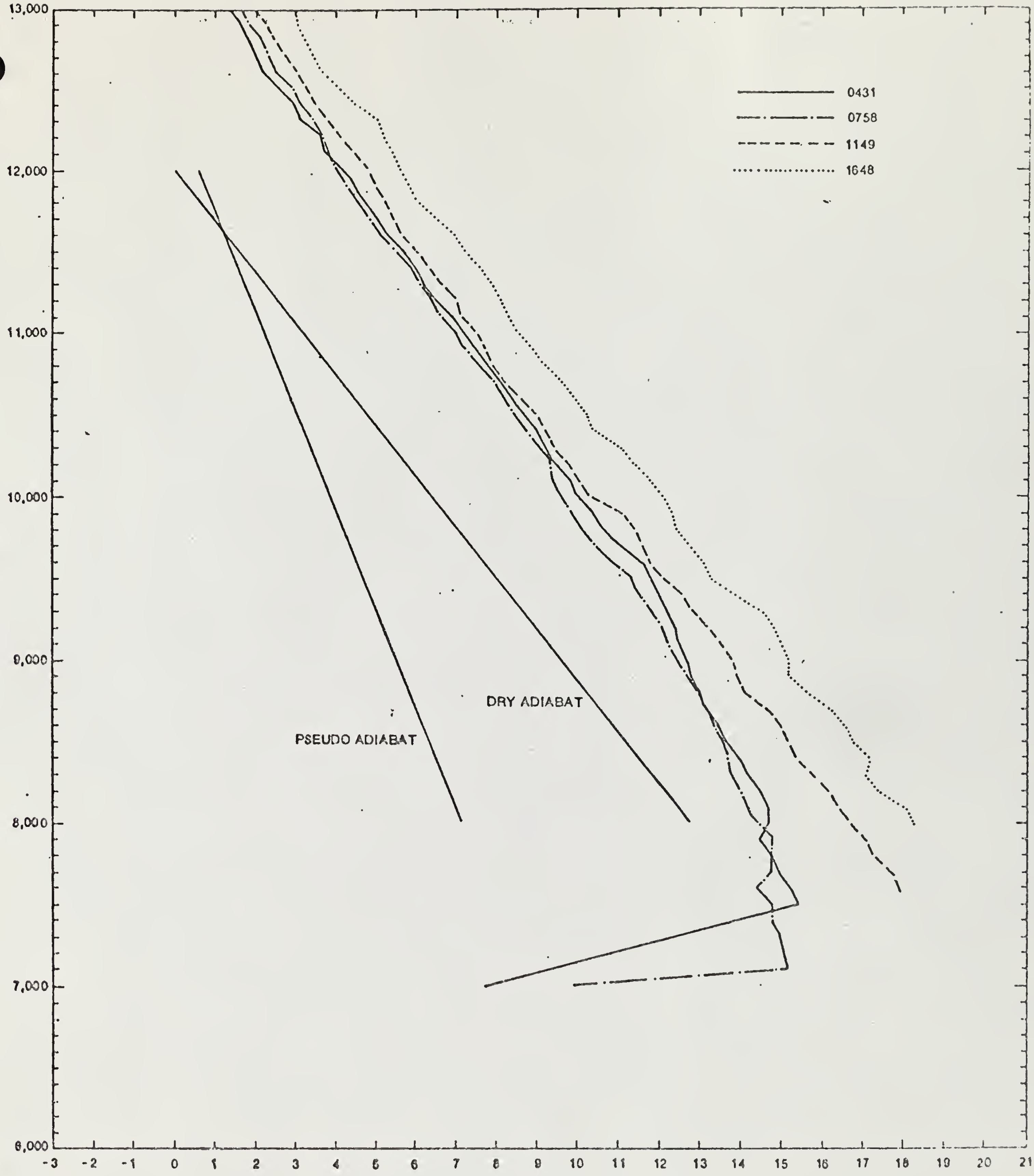


Figure B-2. Temperature Soundings Over Tract C-b on 2 October 1974

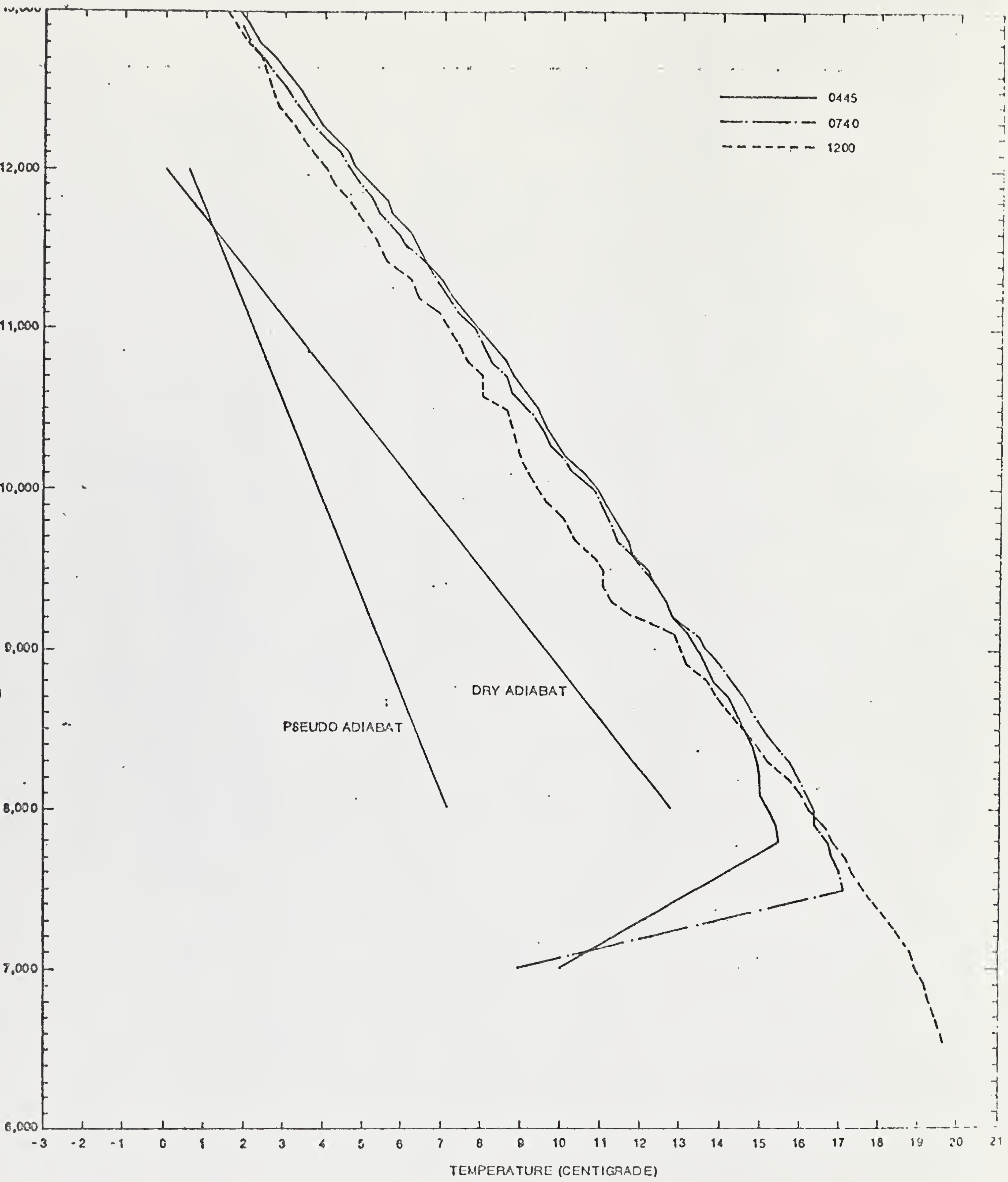


Figure B-3. Temperature Soundings Over Tract C-b on 3 October 1974

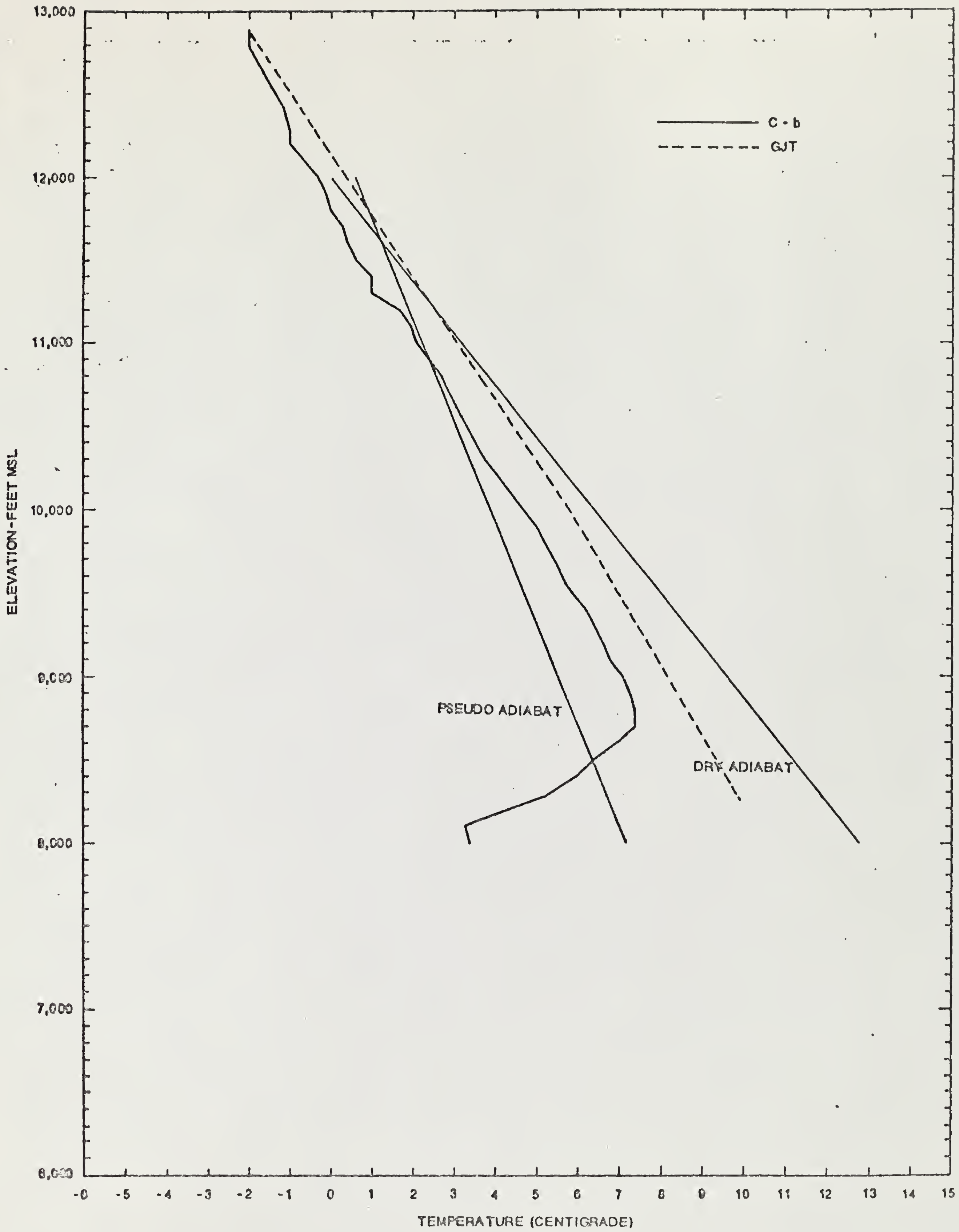


Figure B-4. Temperature Soundings Over Tract C-b on 5 October 1974

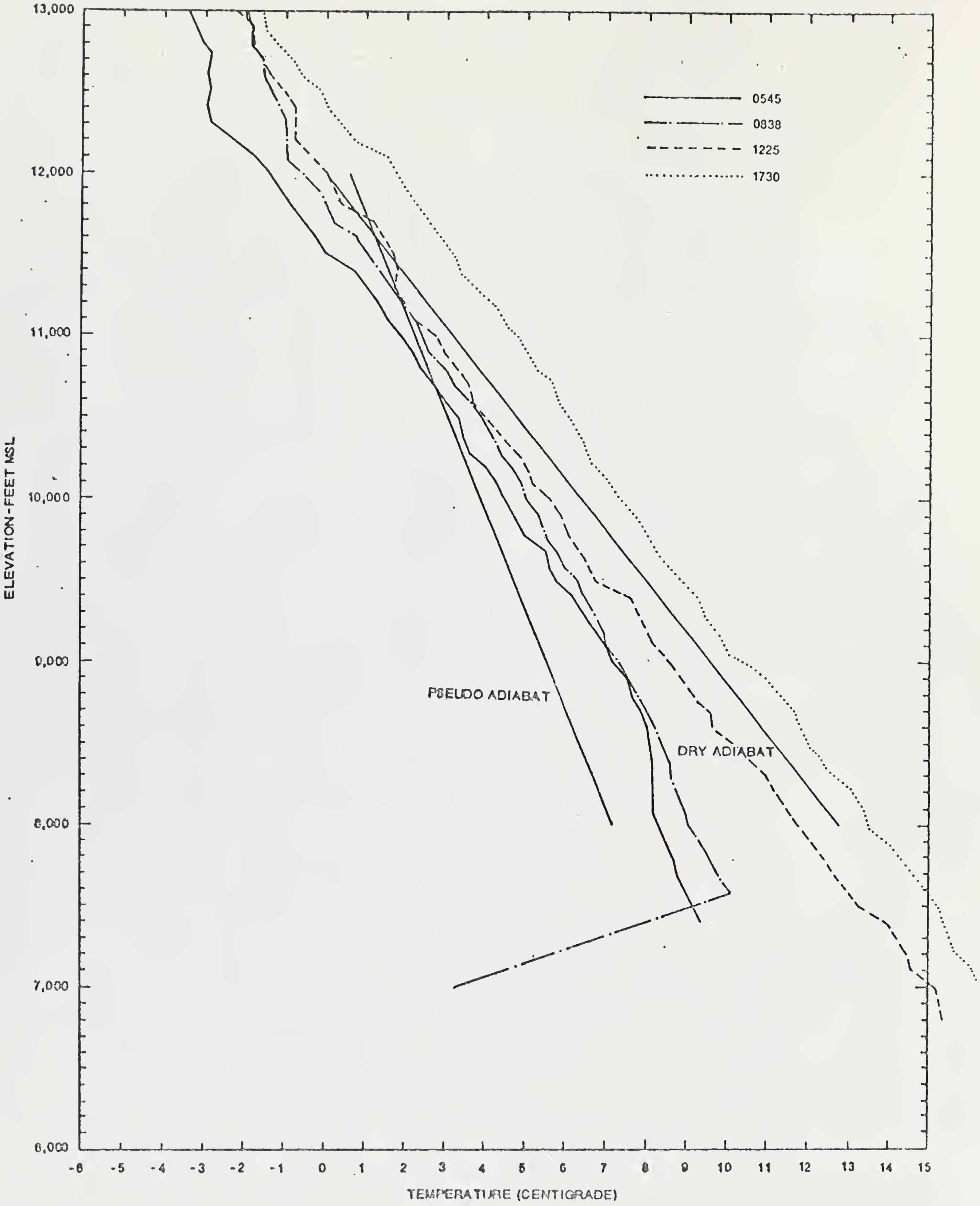


Figure B-5. Temperature Soundings Over Tract C-b on 7 October 1974

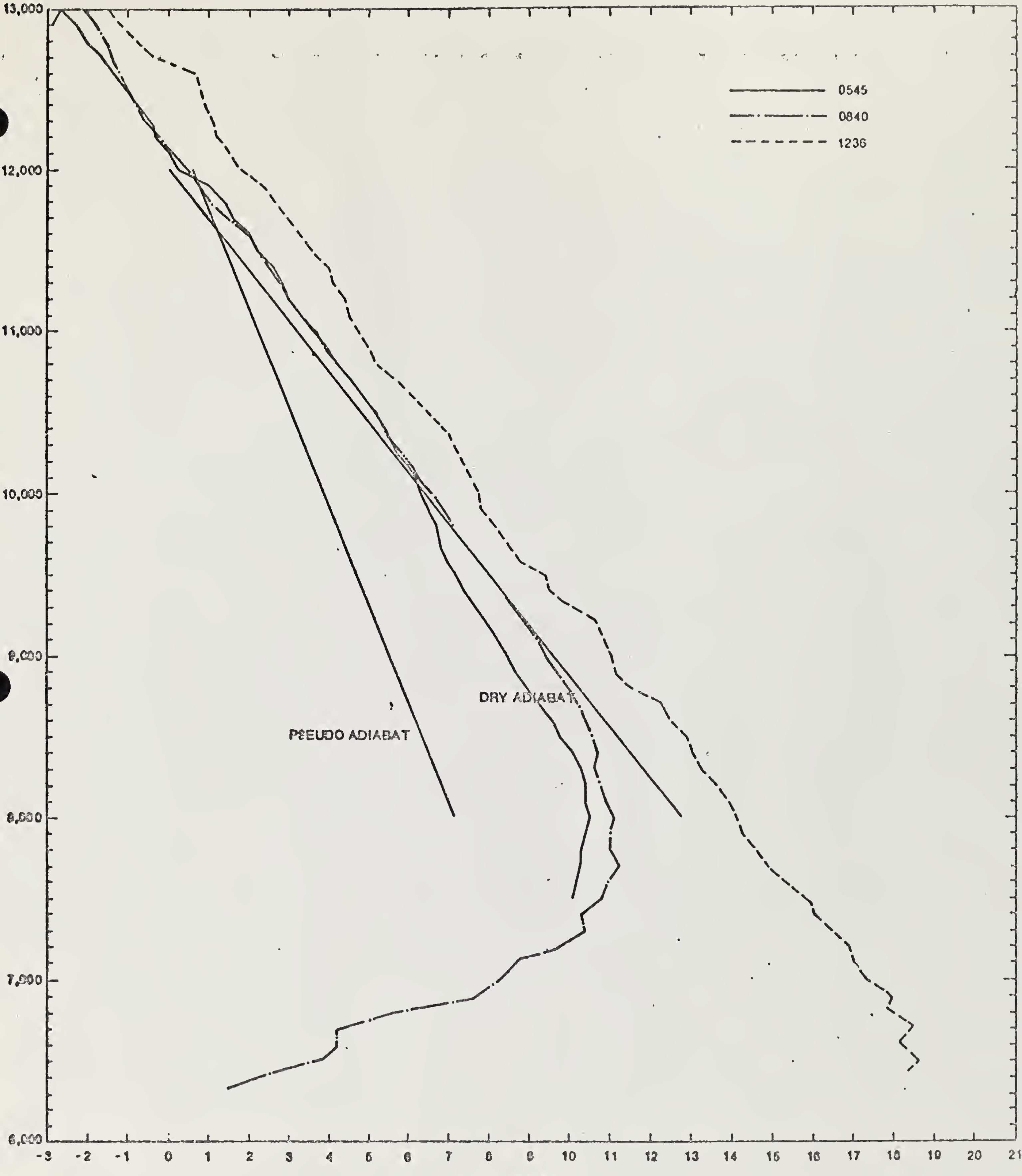


Figure B-6. Temperature Soundings Over Tract C-b on 8 October 1974

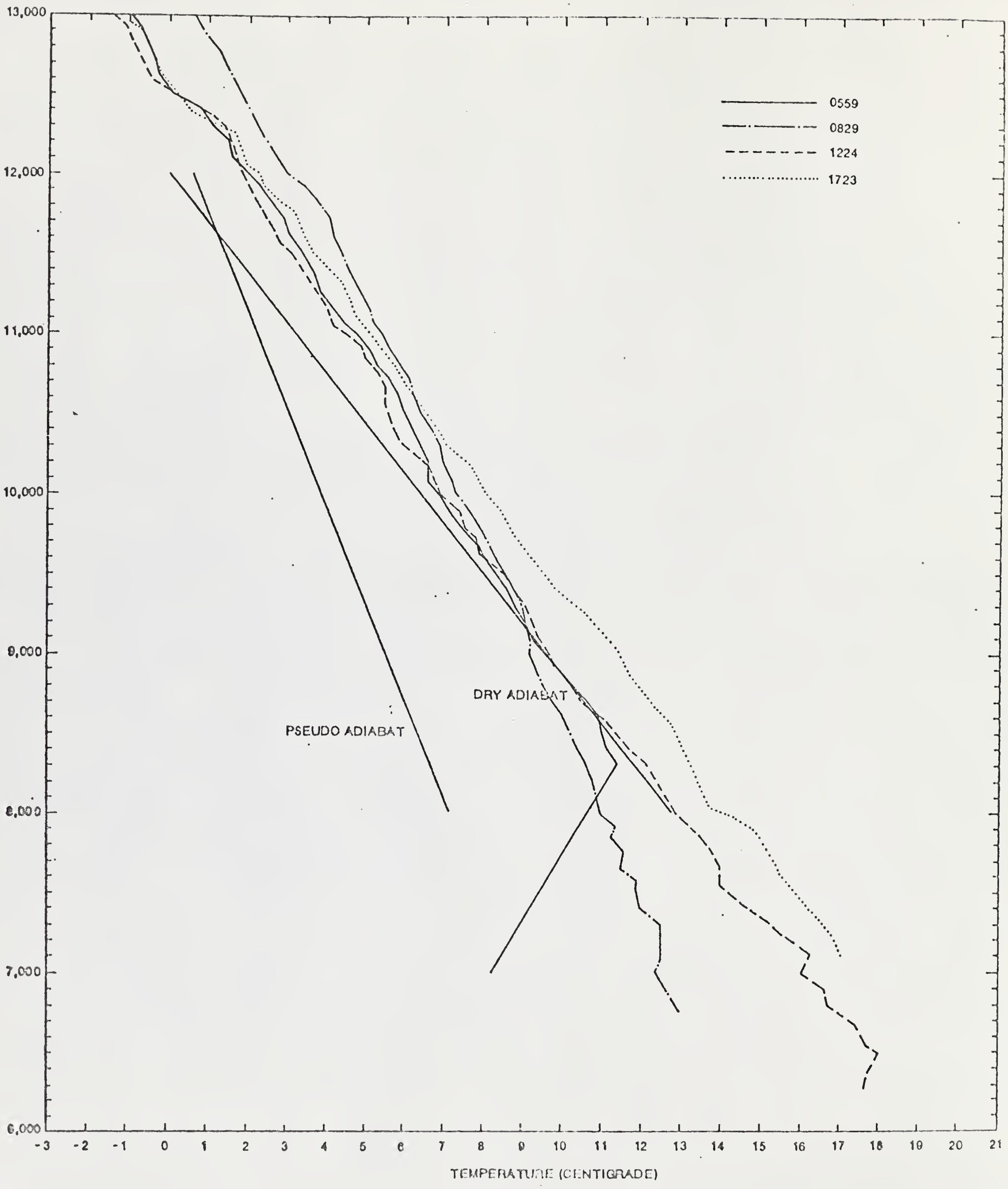


Figure B-7. Temperature Soundings Over Tract C-b on 9 October 1974

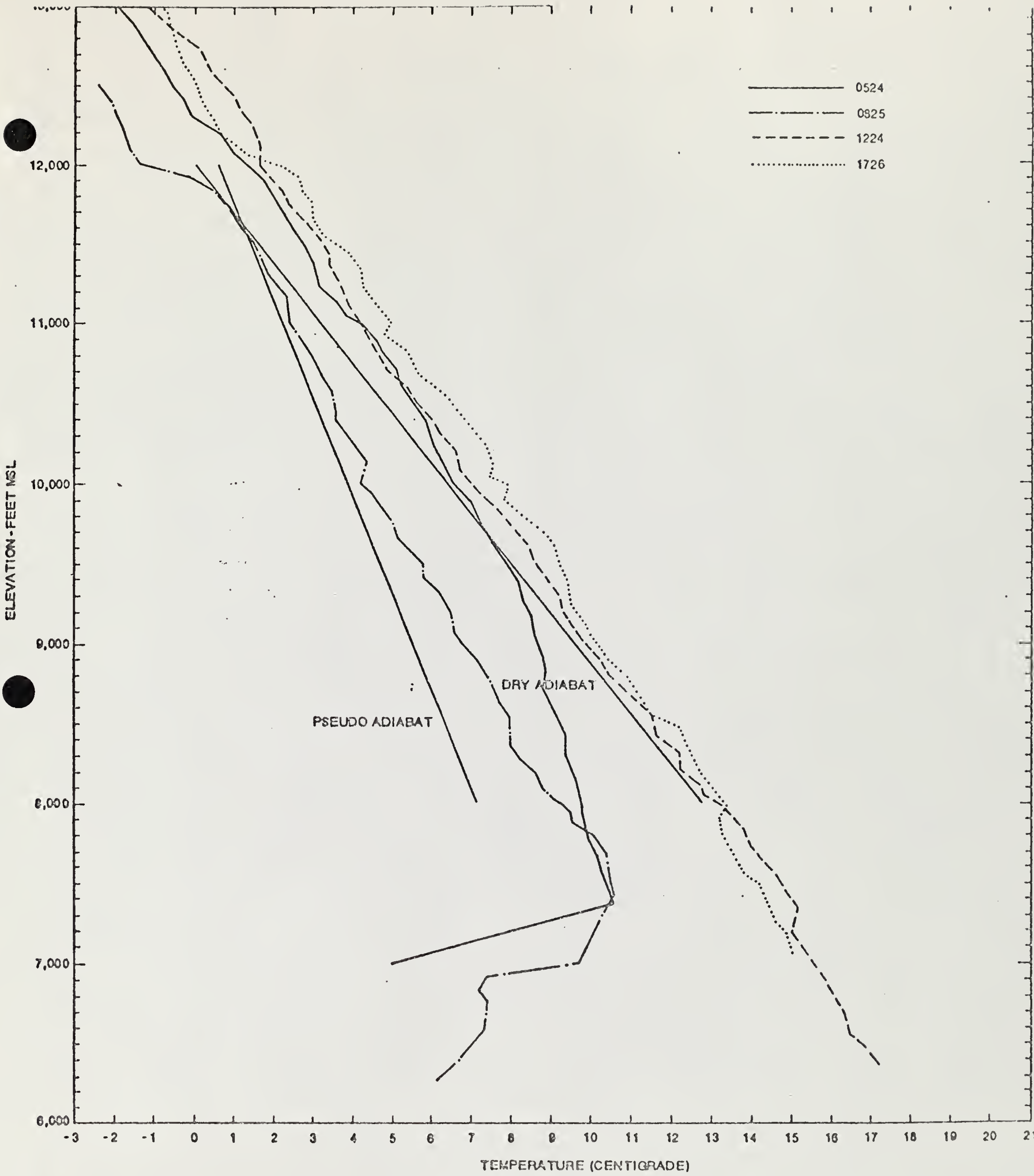


Figure B-8. Temperature Soundings Over Tract C-b on 10 October 1974

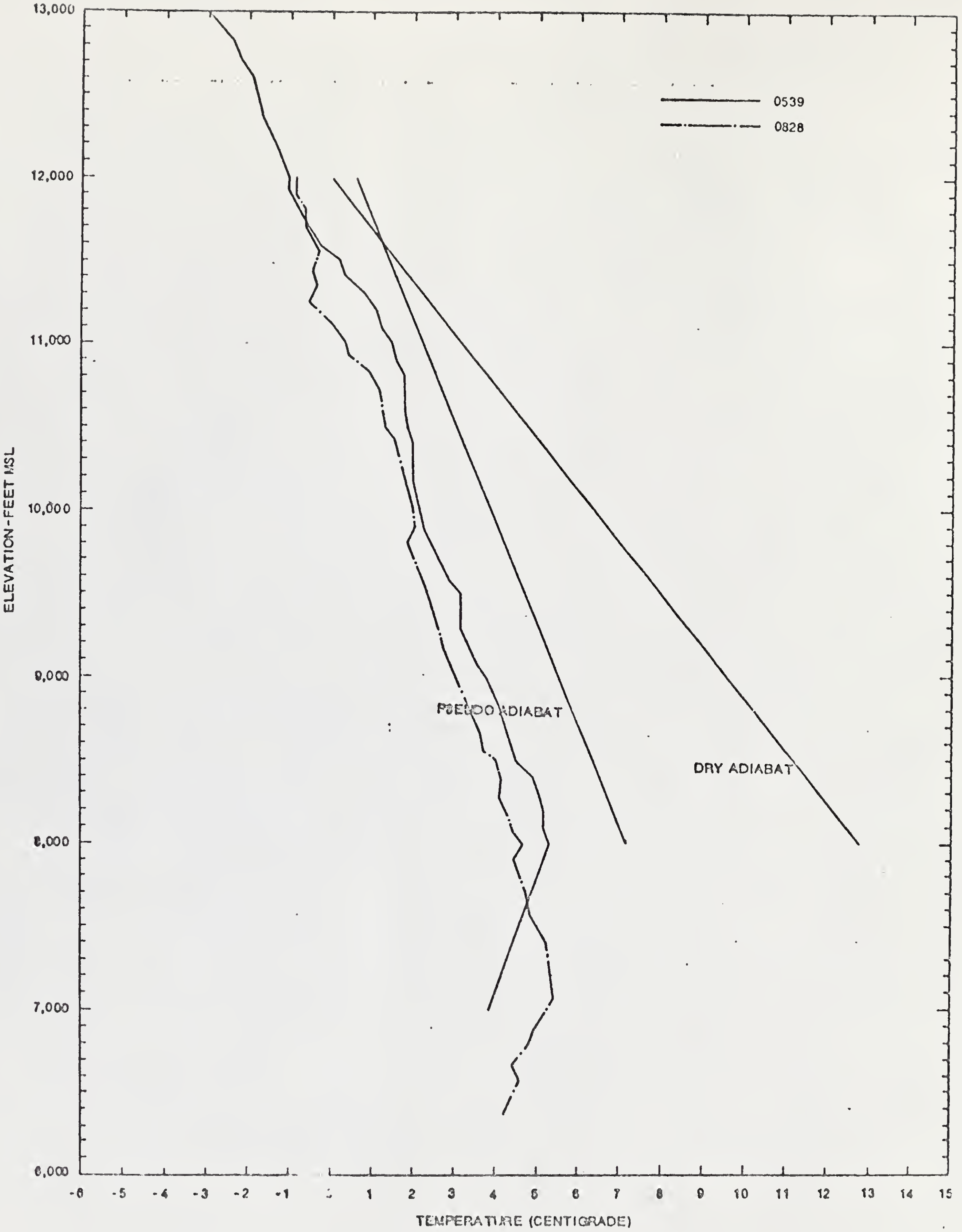


Figure B-9. Temperature Soundings Over Tract C-b on 11 October 1974

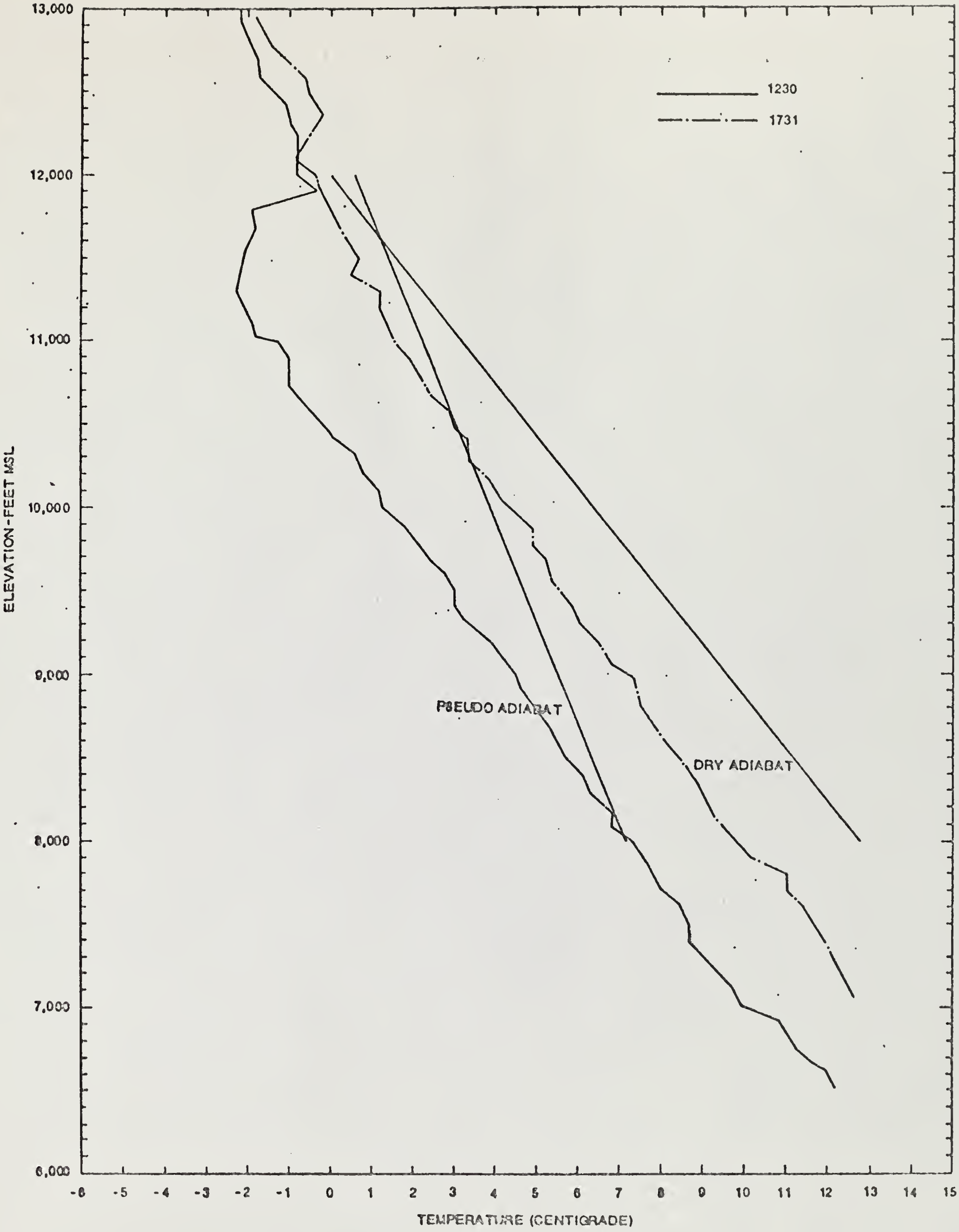


Figure B-10. Temperature Soundings Over Tract C-b on 13 October 1974

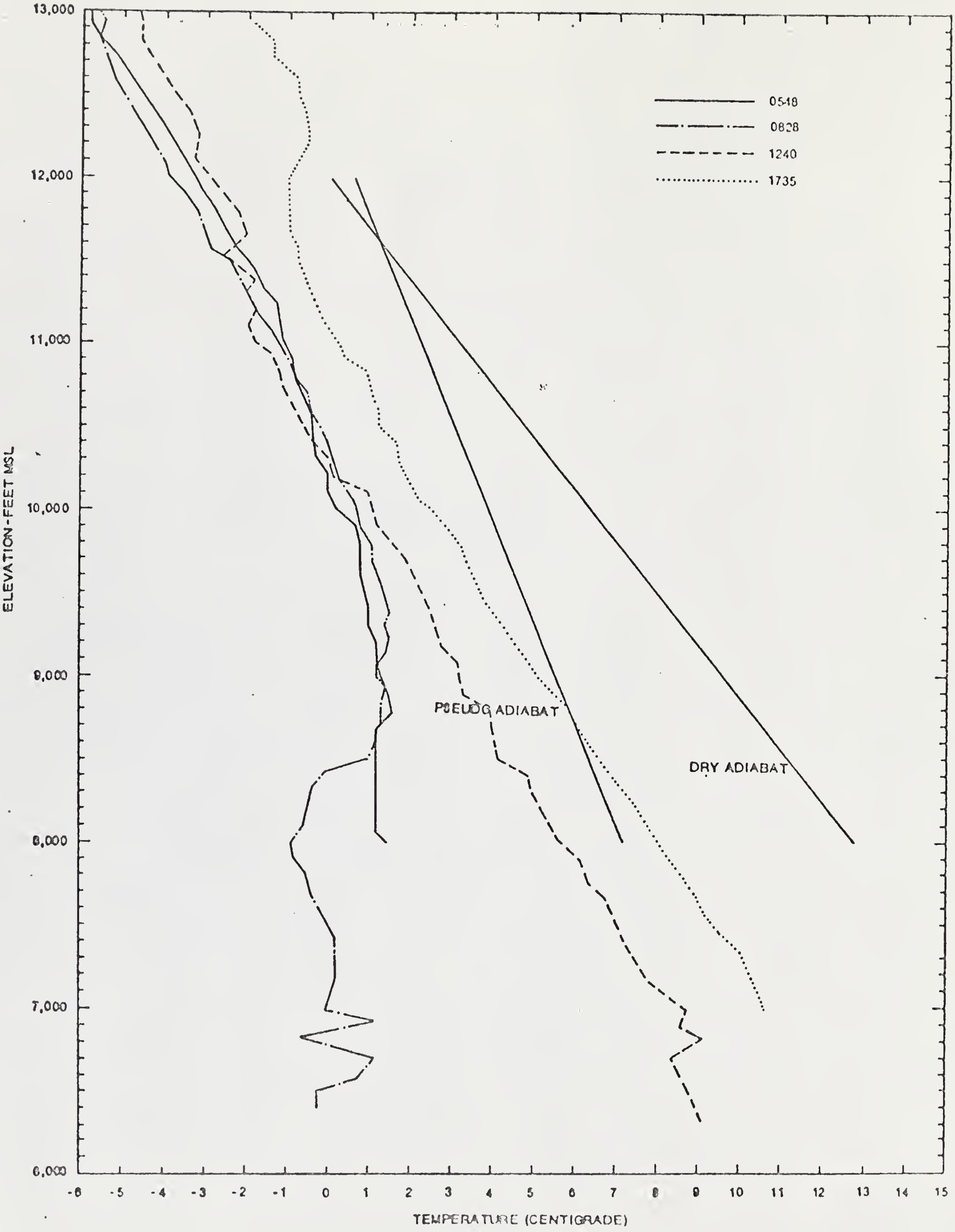


Figure B-11. Temperature Soundings Over Tract C-b on 14 October 1974

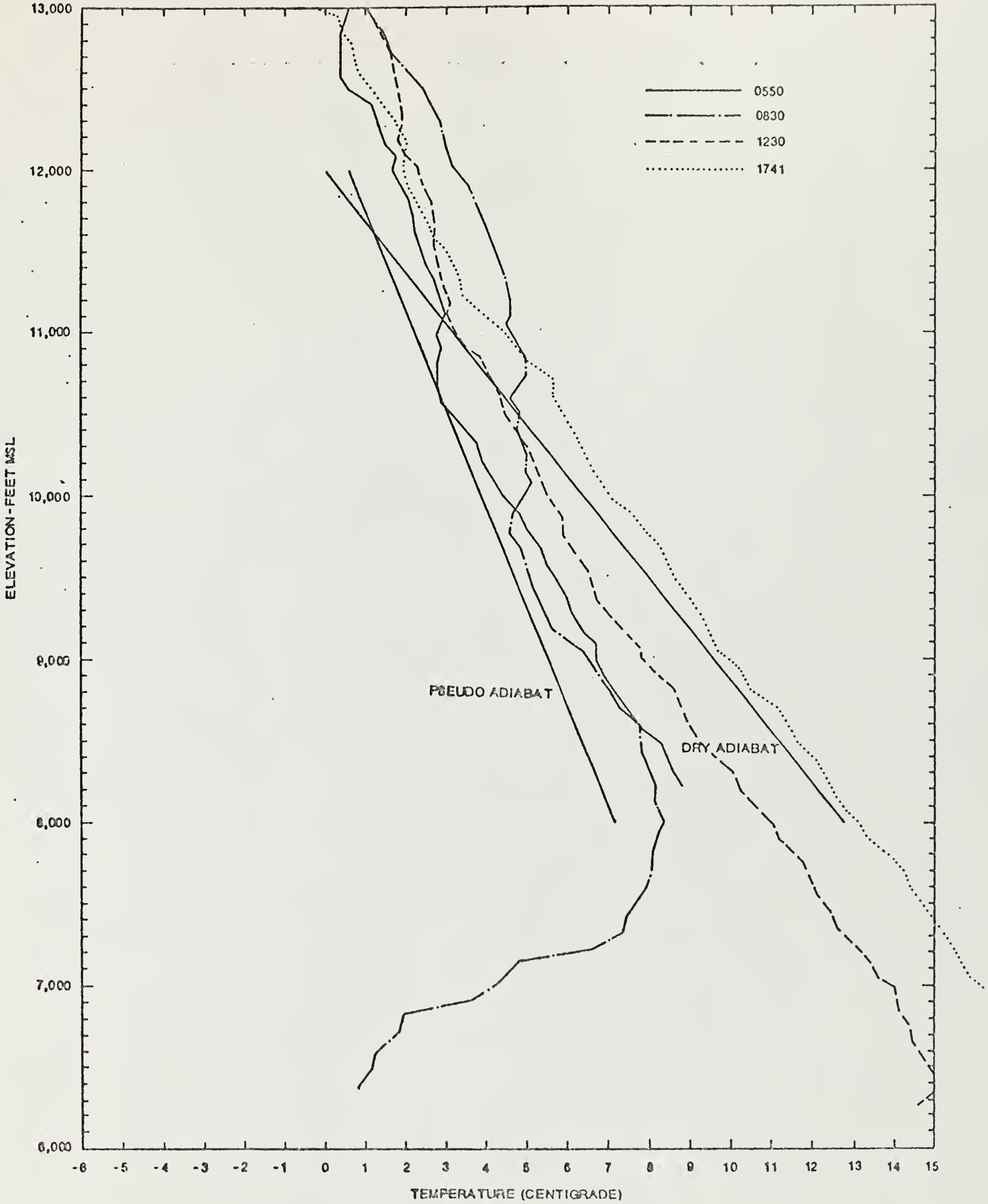


Figure B-12. Temperature Soundings Over Tract C-b on 15 October 1974

APPENDIX C

Pilot Balloon Soundings over Federal Oil Shale Tract C-b
During the Period 1 October through 15 October 1974

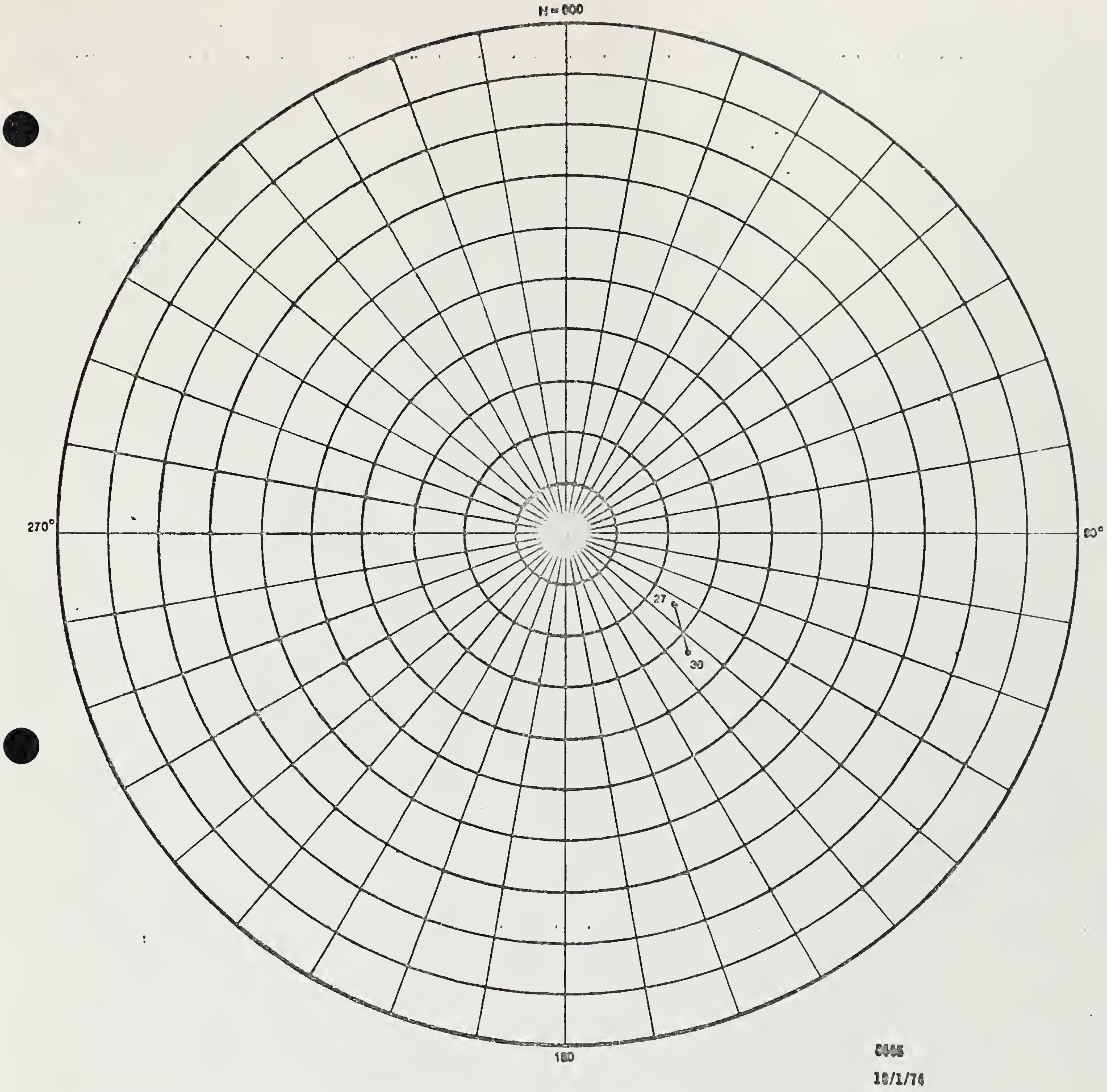


Figure C-1. Pibal Sounding Over Tract C-b on 1 October 1974

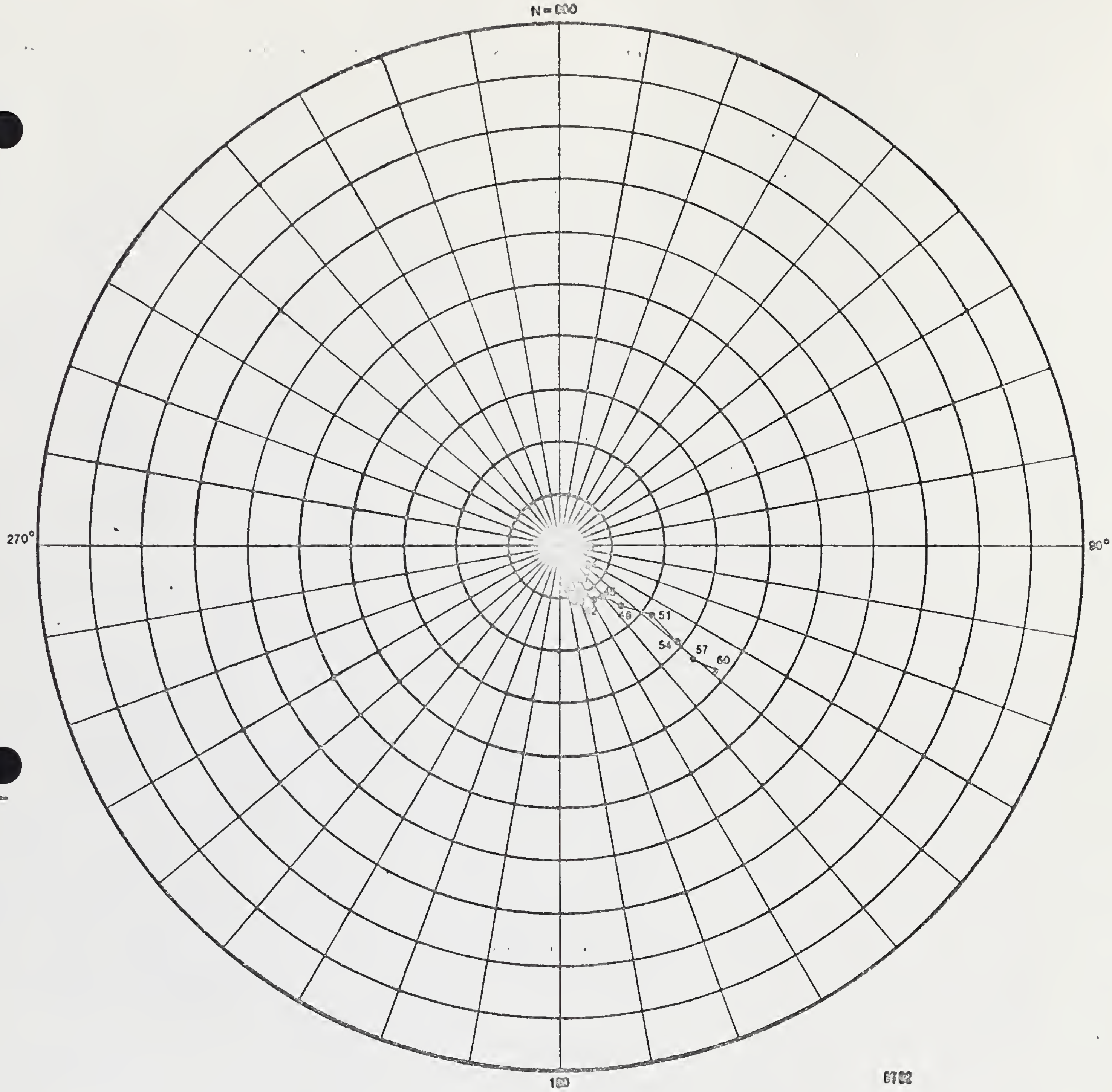
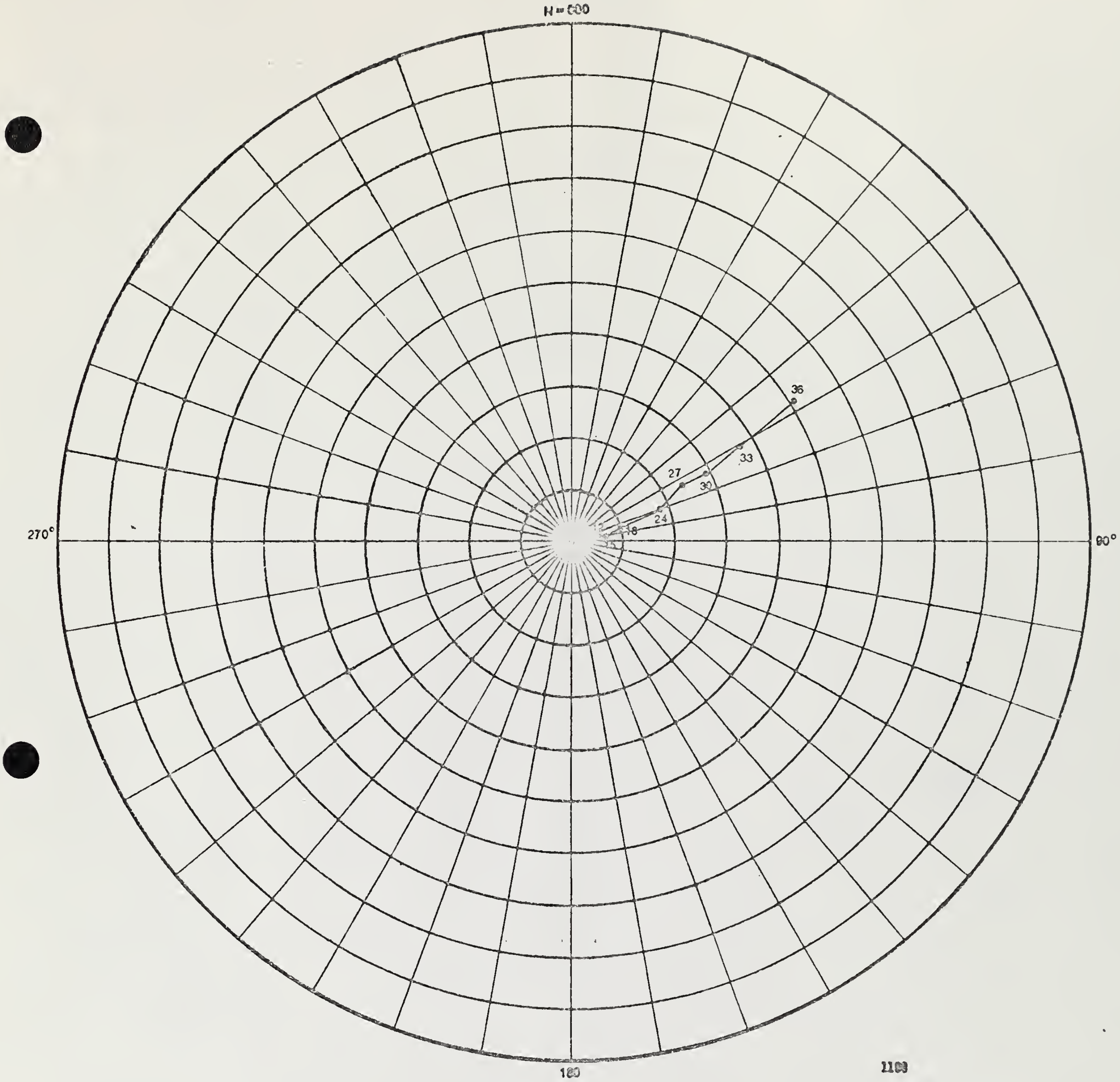


Figure C-2. Pibal Sounding Over Tract C-b on 1 October 1974

0702
10/1/74
1000 ft/div



1100
10/1/74
1000 ft/div

Figure C-3. Pibal Sounding Over Tract C-b on 1 October 1974

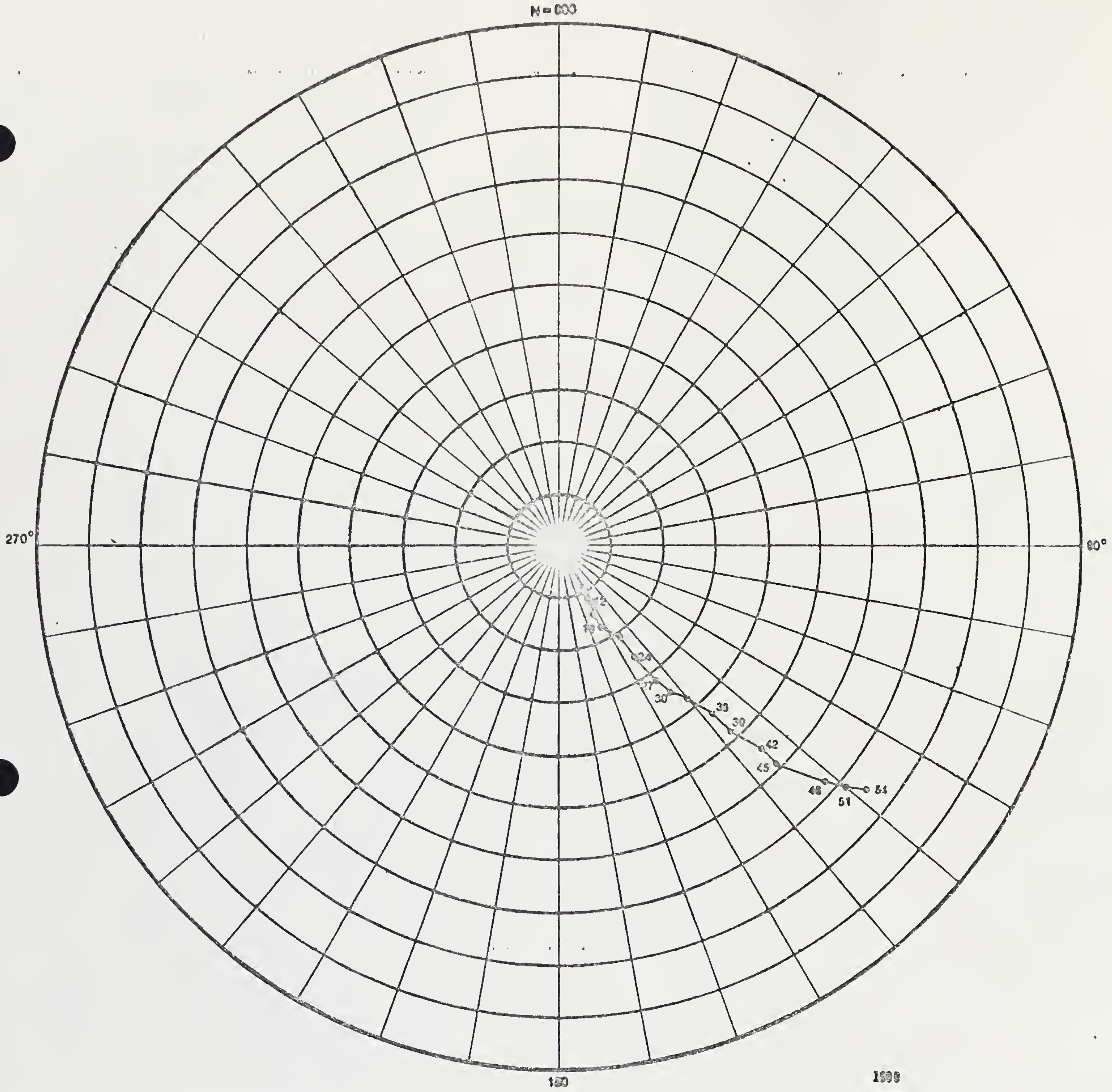
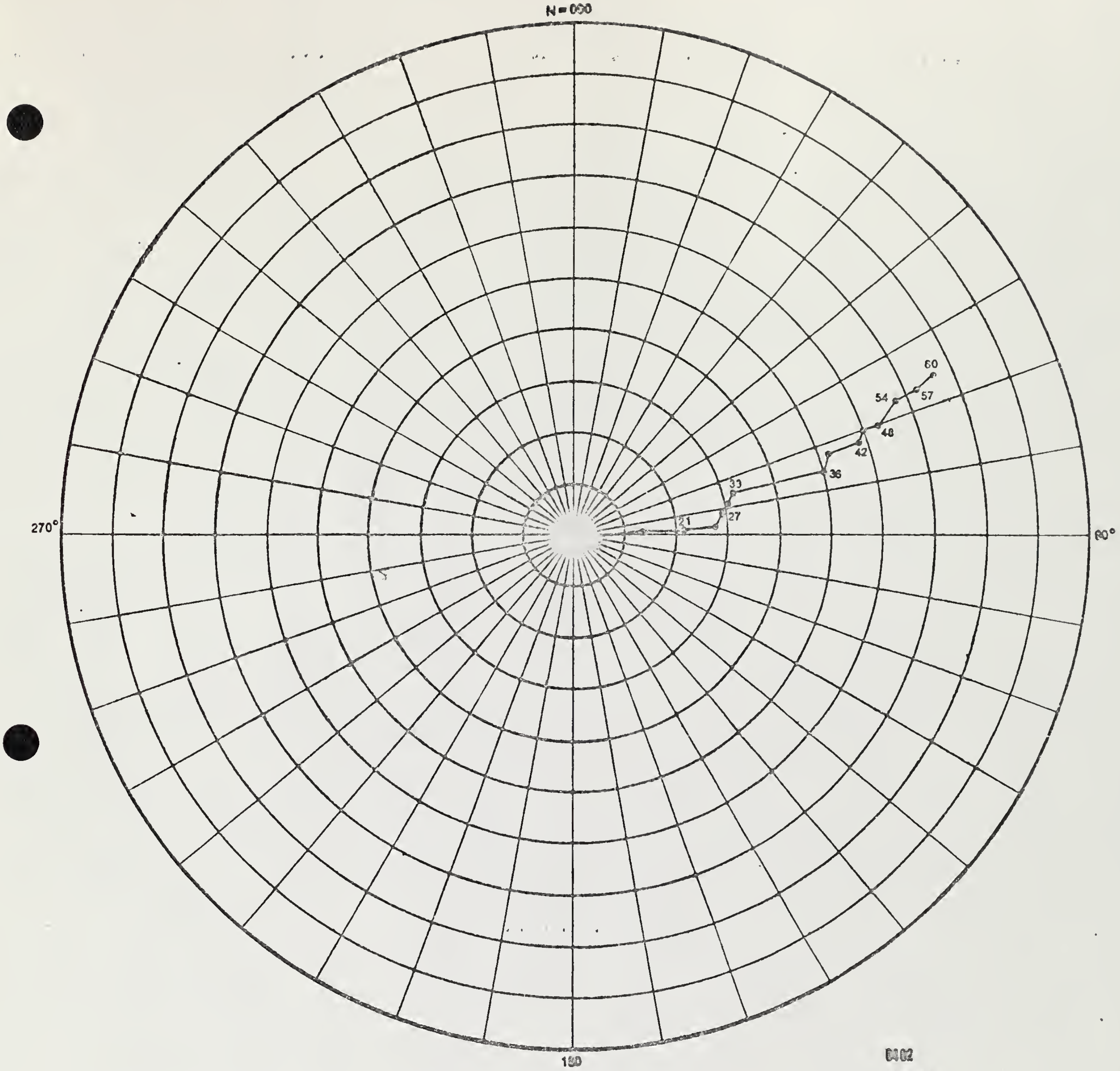


Figure C-4. Pibal Sounding Over Tract C-b on 1 October 1974

1500
10/1/74
1000 ft/div



0802
10/2/74
1000 ft/div

Figure C-5. Pibal Sounding Over Tract C-b on 2 October 1974

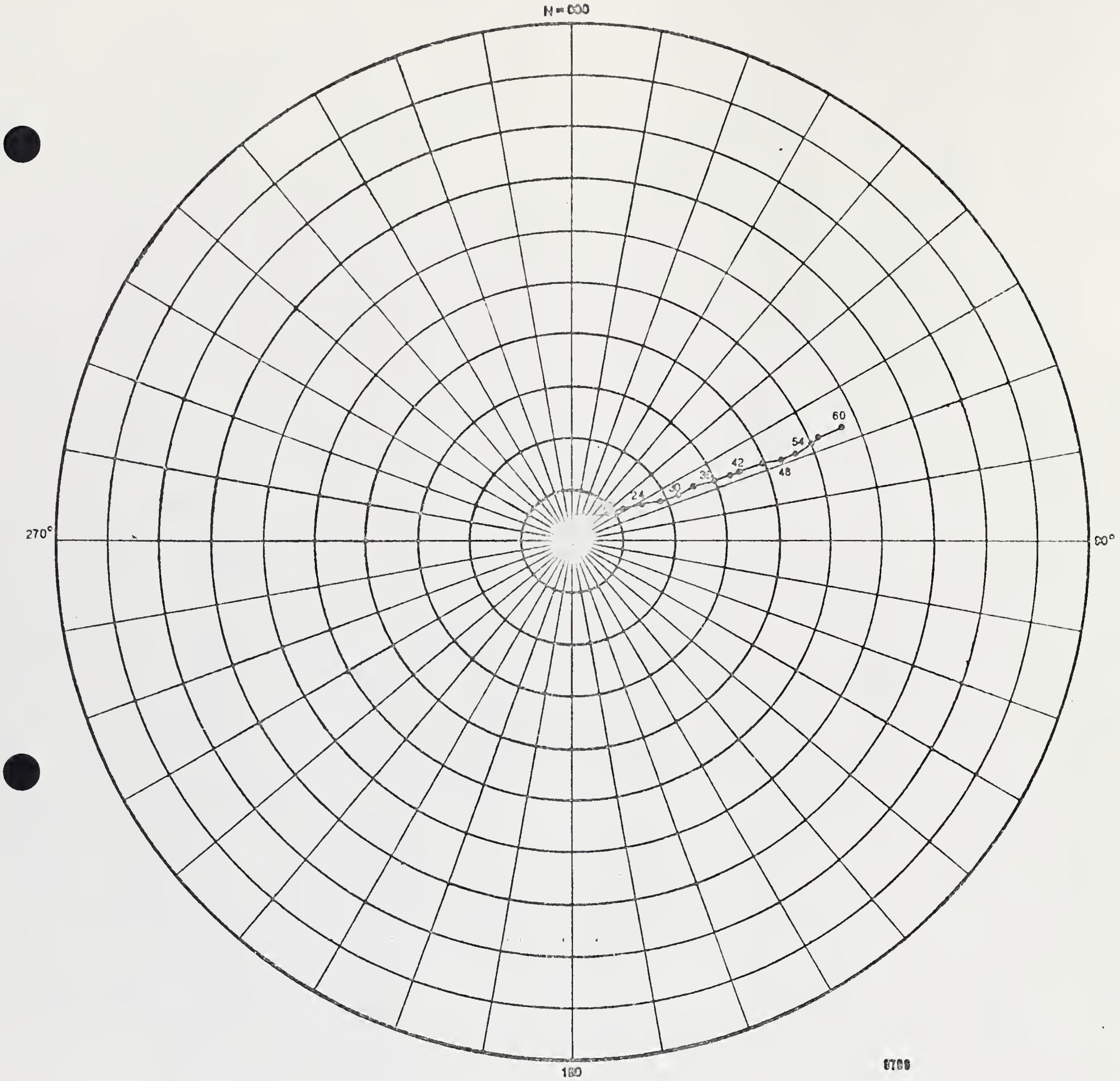


Figure C-6. Pibal Sounding Over Tract C-b on 2 October 1974

0700
10/2/74
2000 ft/div

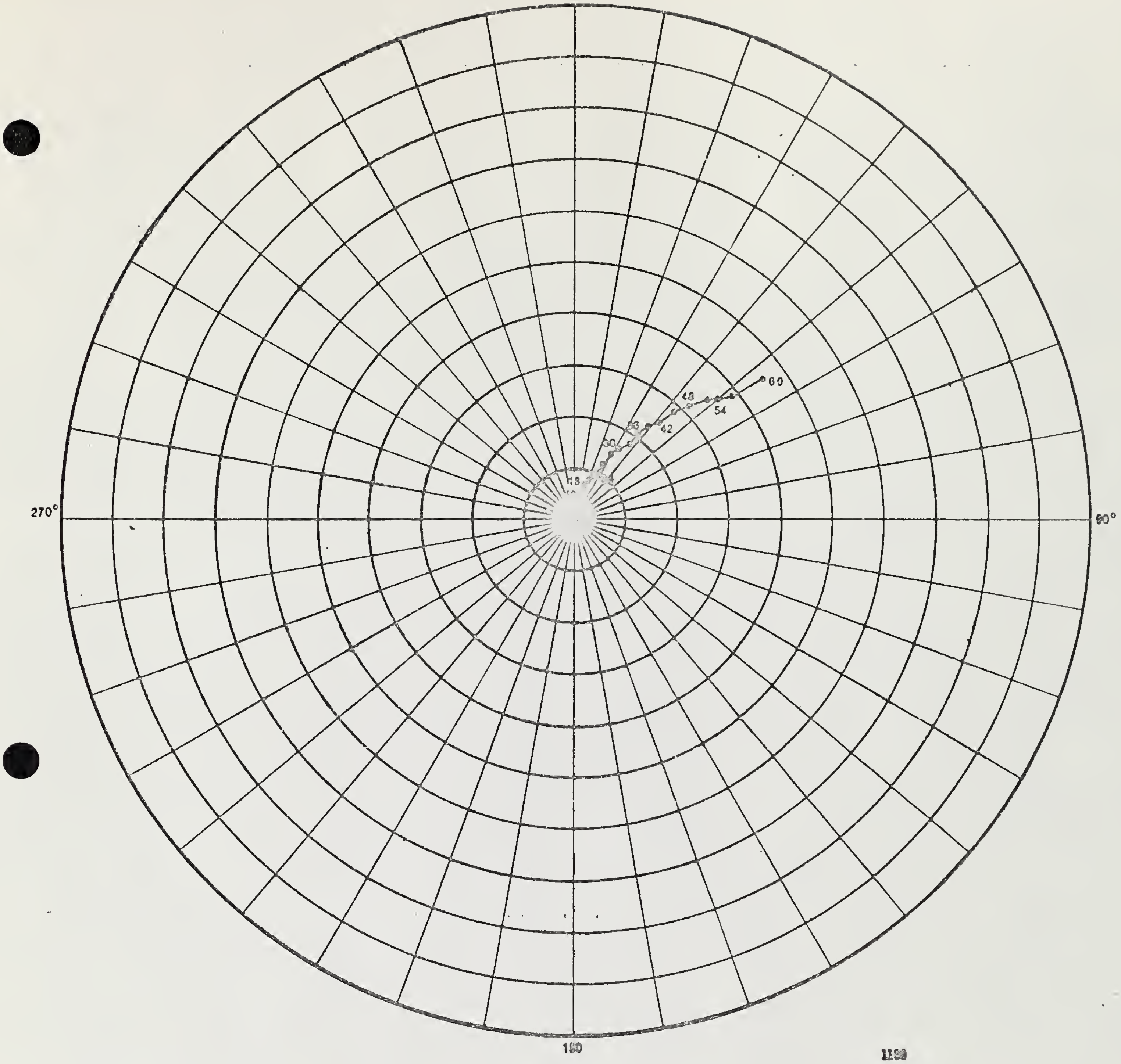


Figure C-7. Pibal Sounding Over Tract C-b on 2 October 1974

1100
10/2/74
2000 ft / div

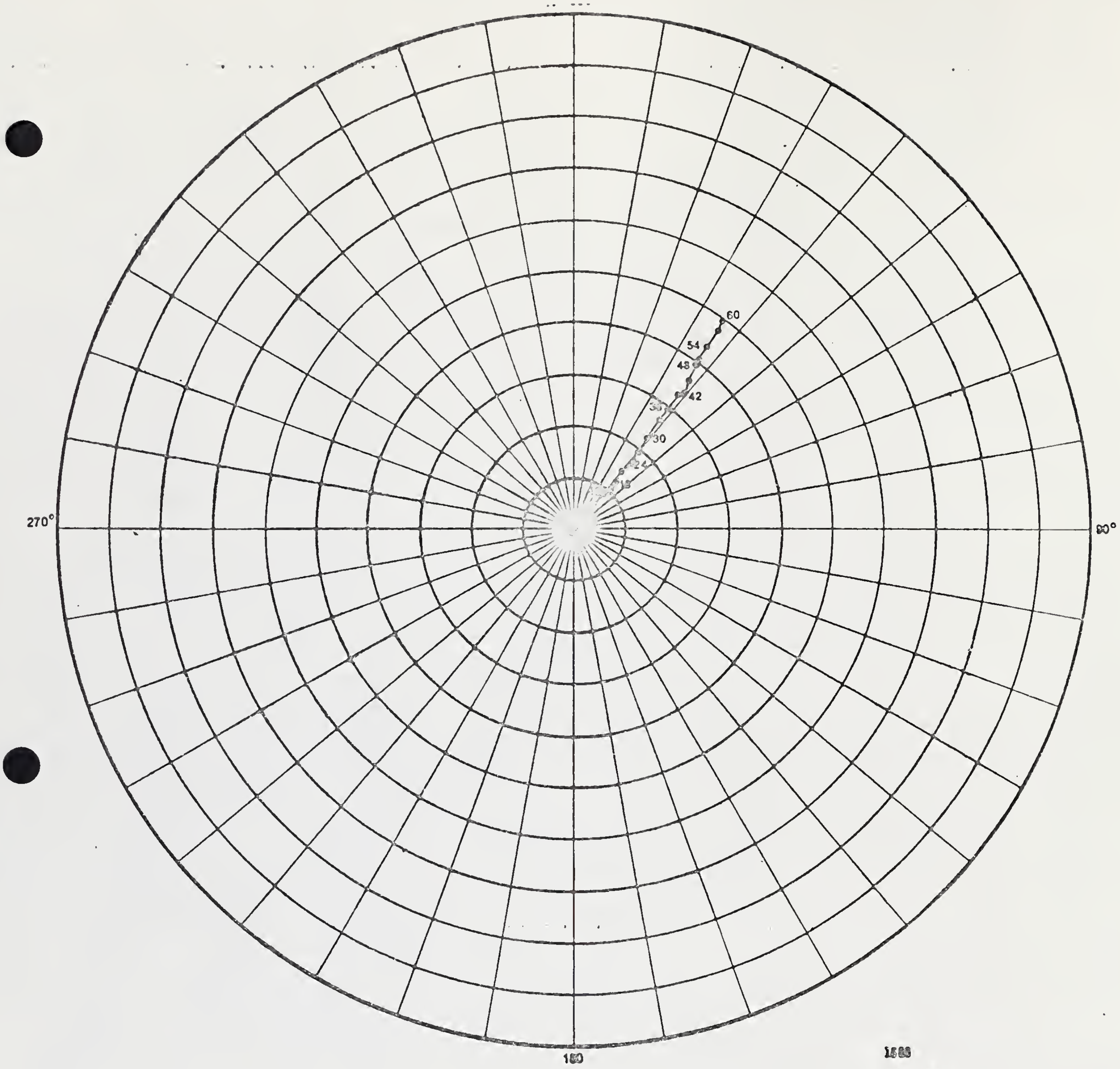


Figure C-8. Pibal Sounding Over Tract C-b on 2 October 1974

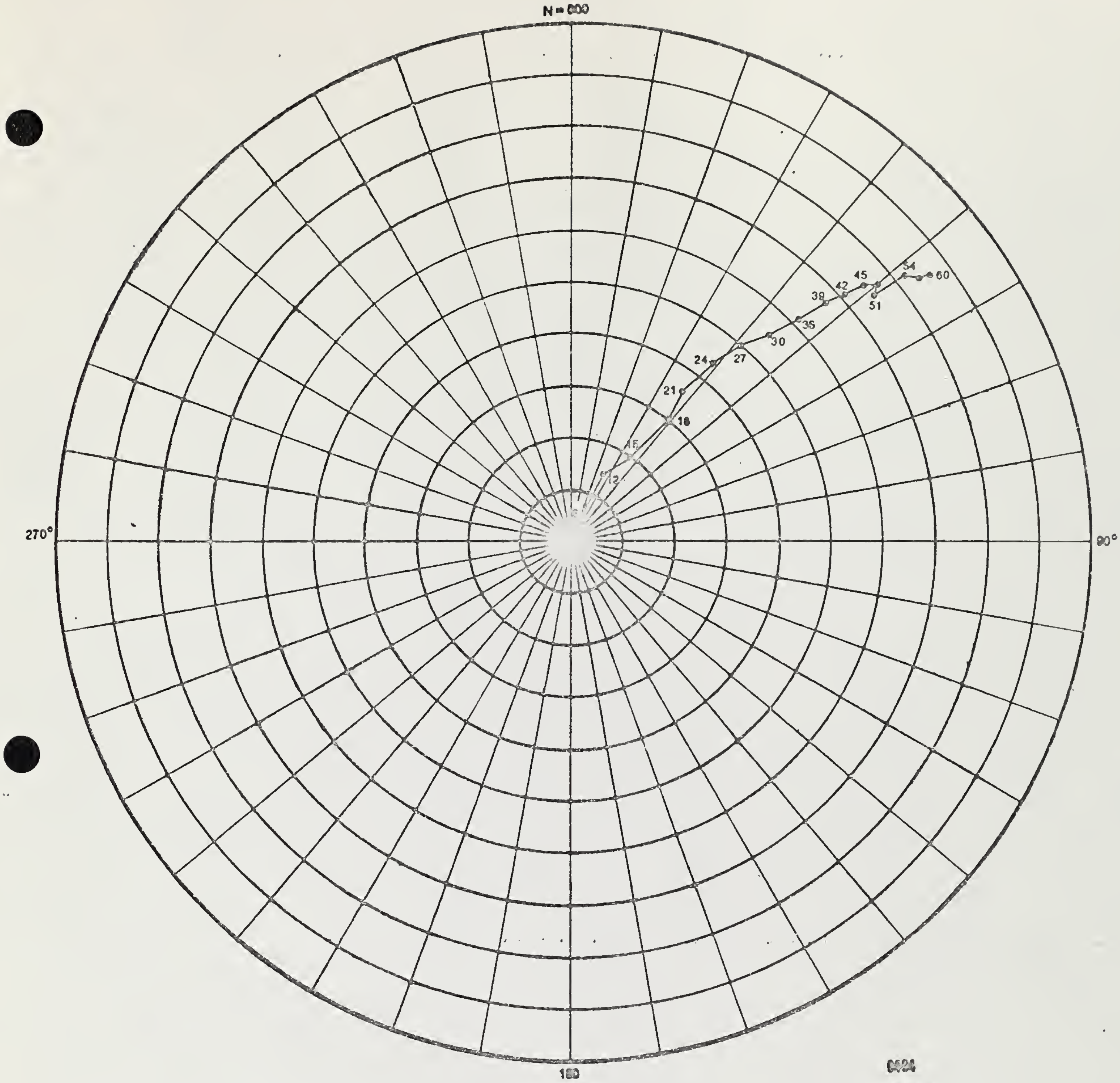


Figure C-9. Pibal Sounding Over Tract C-b on 3 October 1974

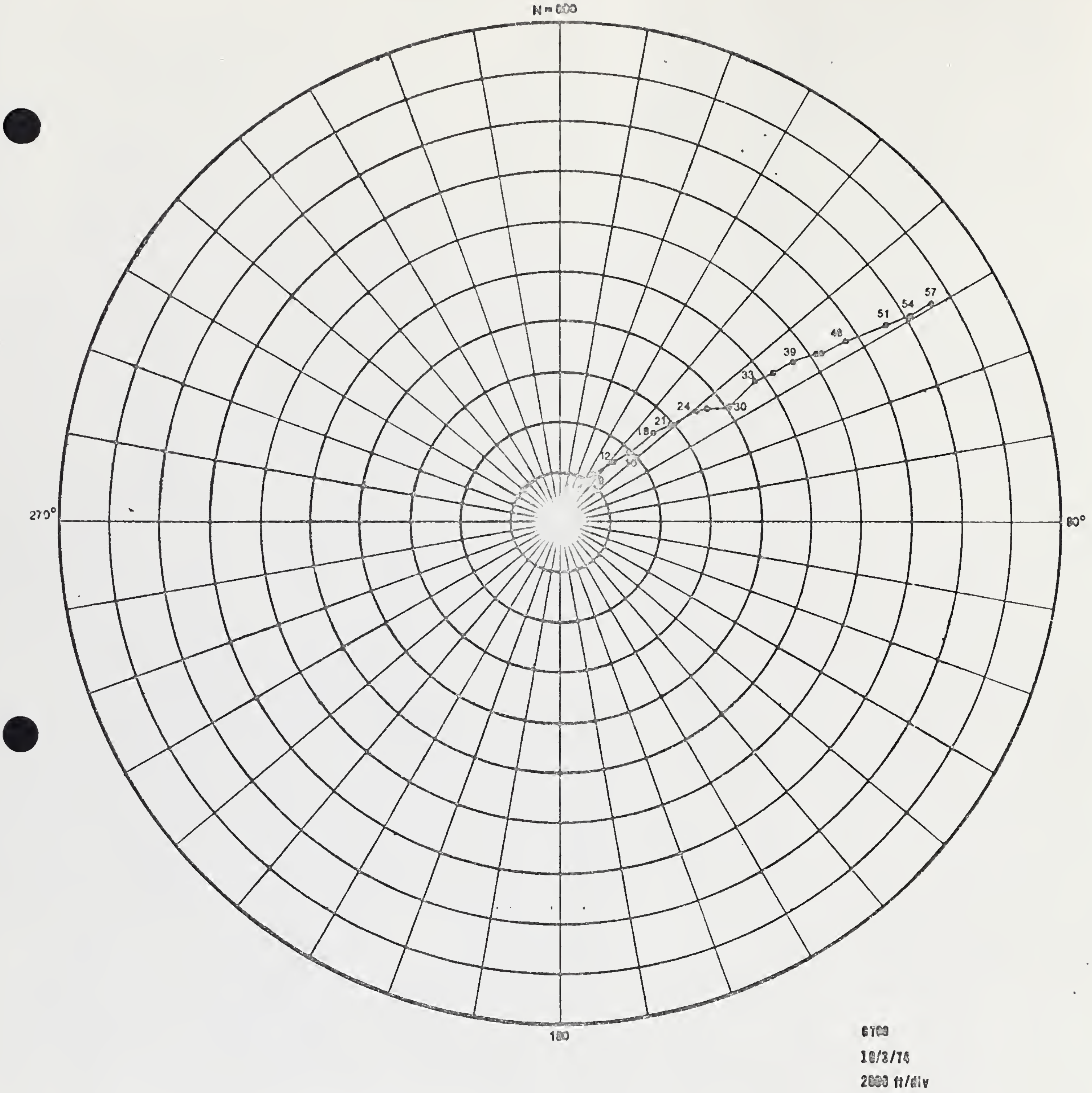


Figure C-10. Pibal Sounding Over Tract C-b on 3 October 1974

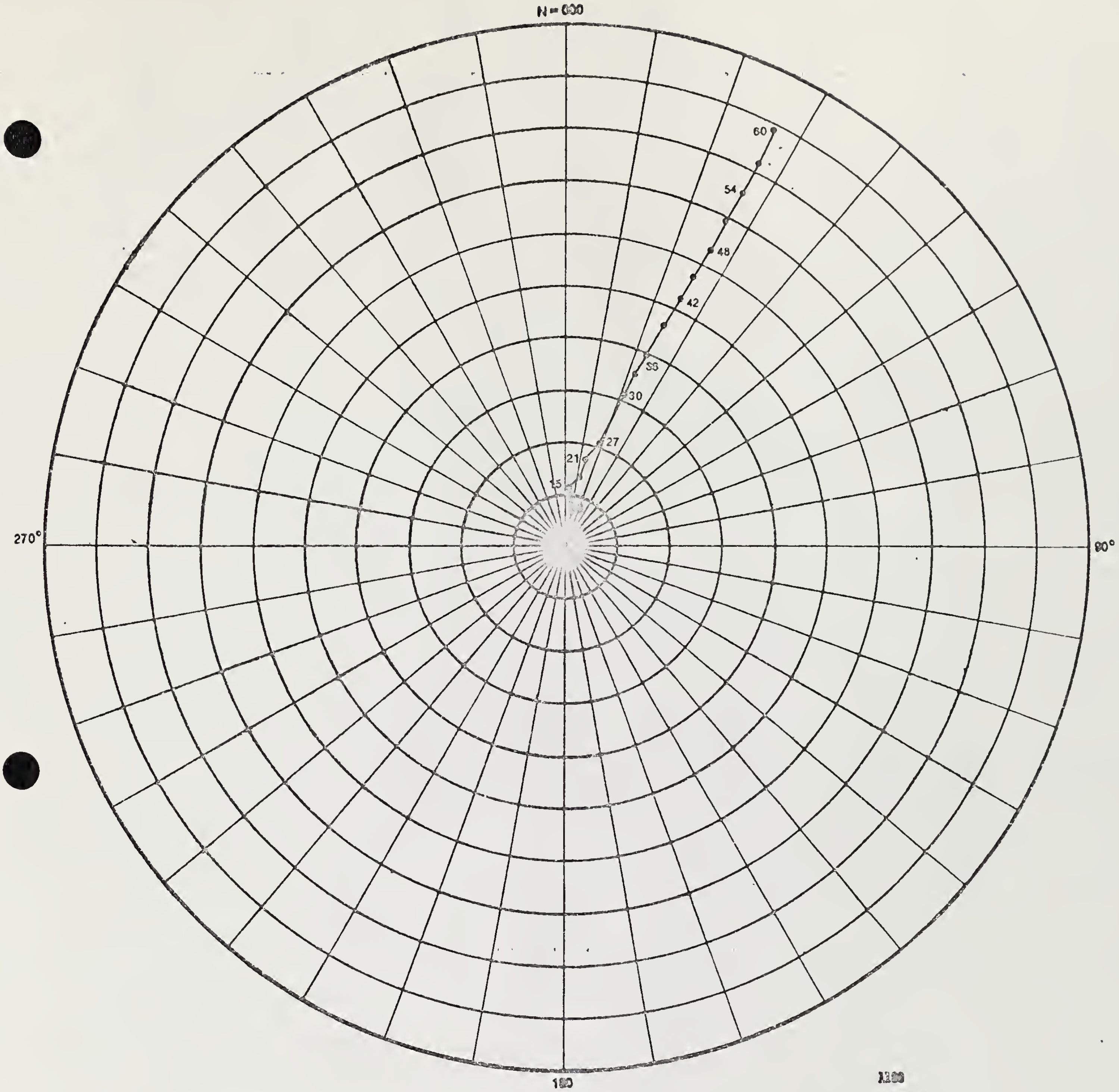


Figure C-11. Pibal Sounding Over Tract C-b on 3 October 1974

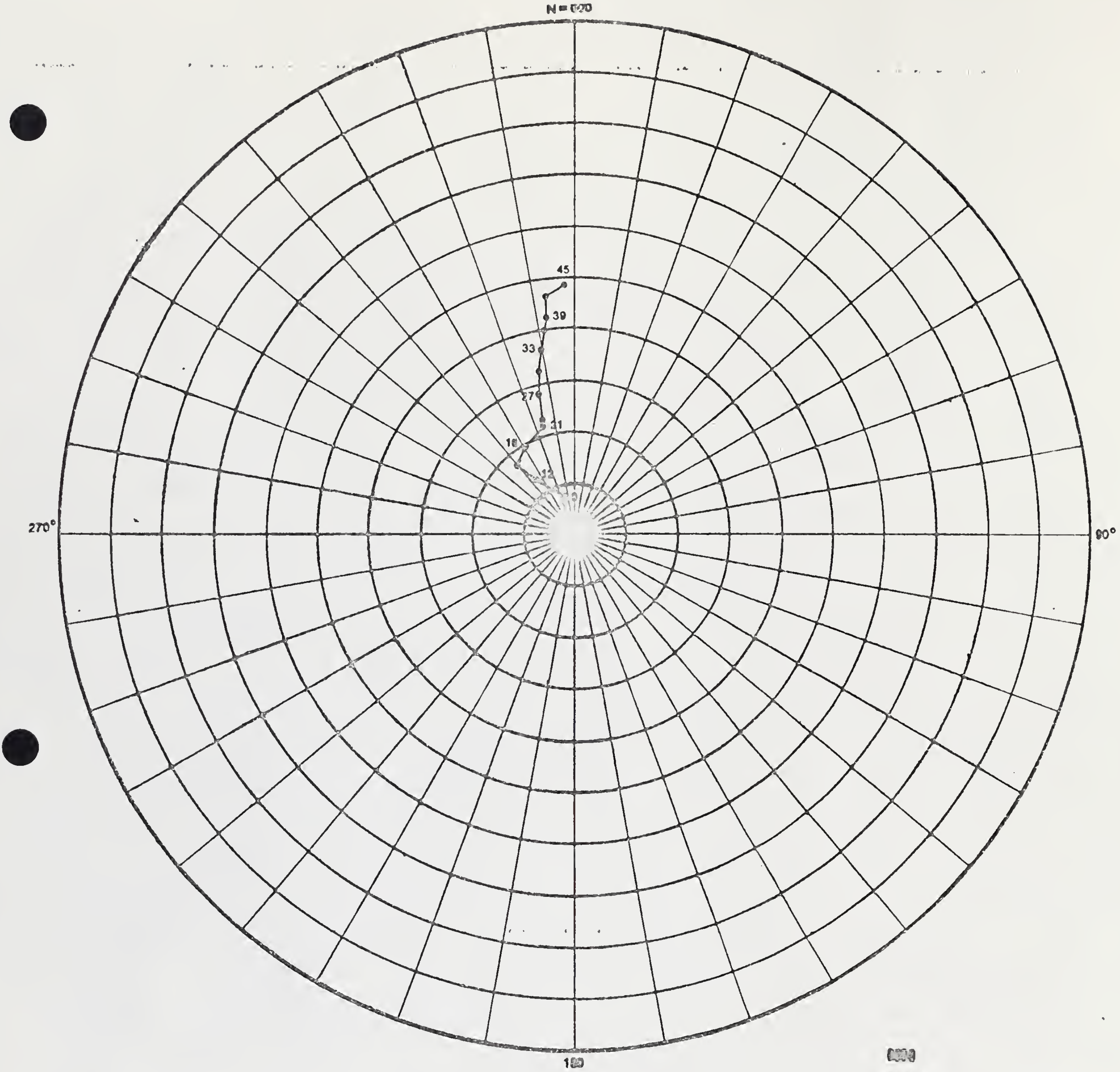


Figure C-12. Pibal Sounding Over Tract C-b on 4 October 1974

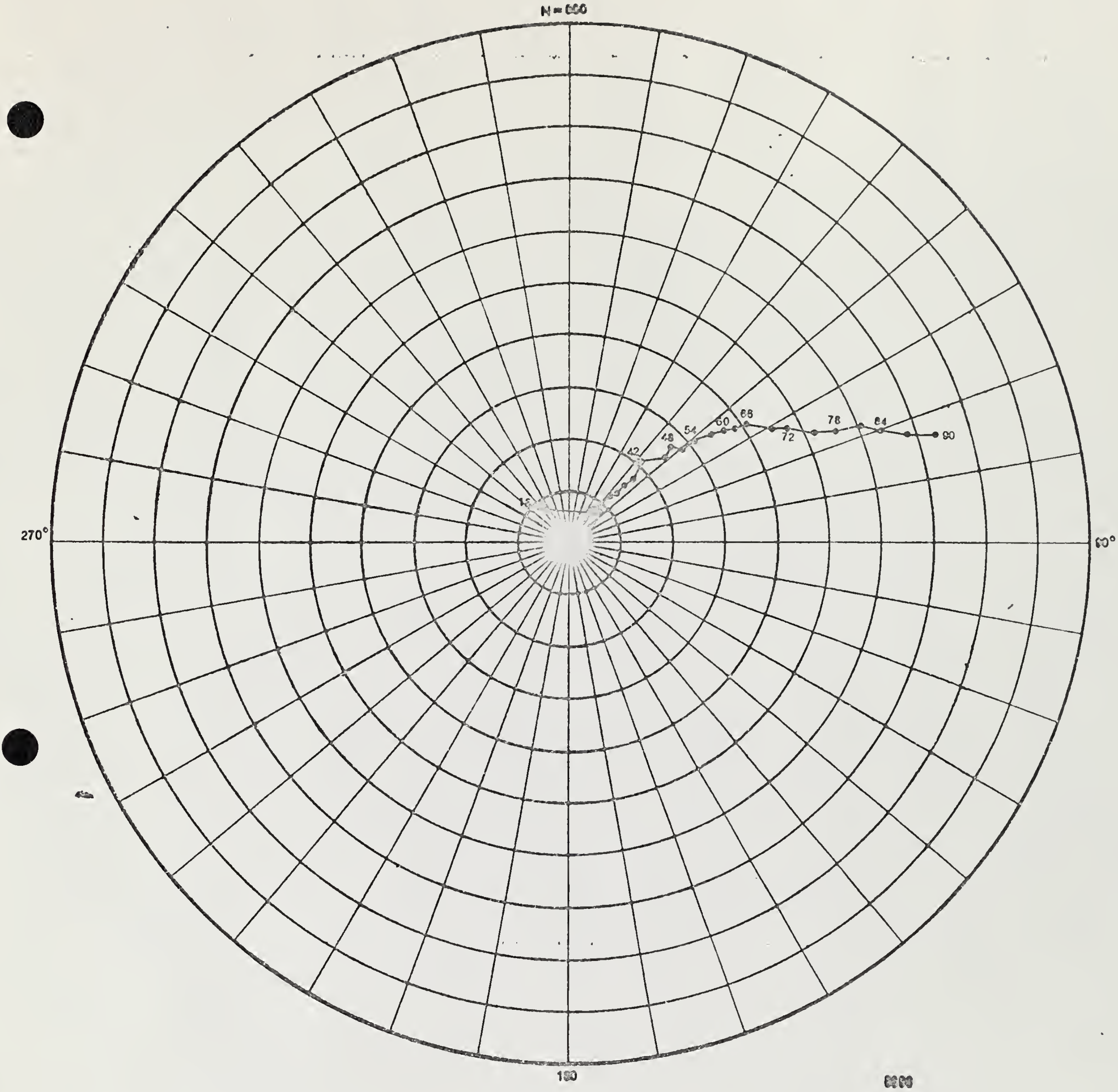


Figure C-13. Pibal Sounding Over Tract C-b on 7 October 1974

[illegible]
10/7/74
1000 ft/div

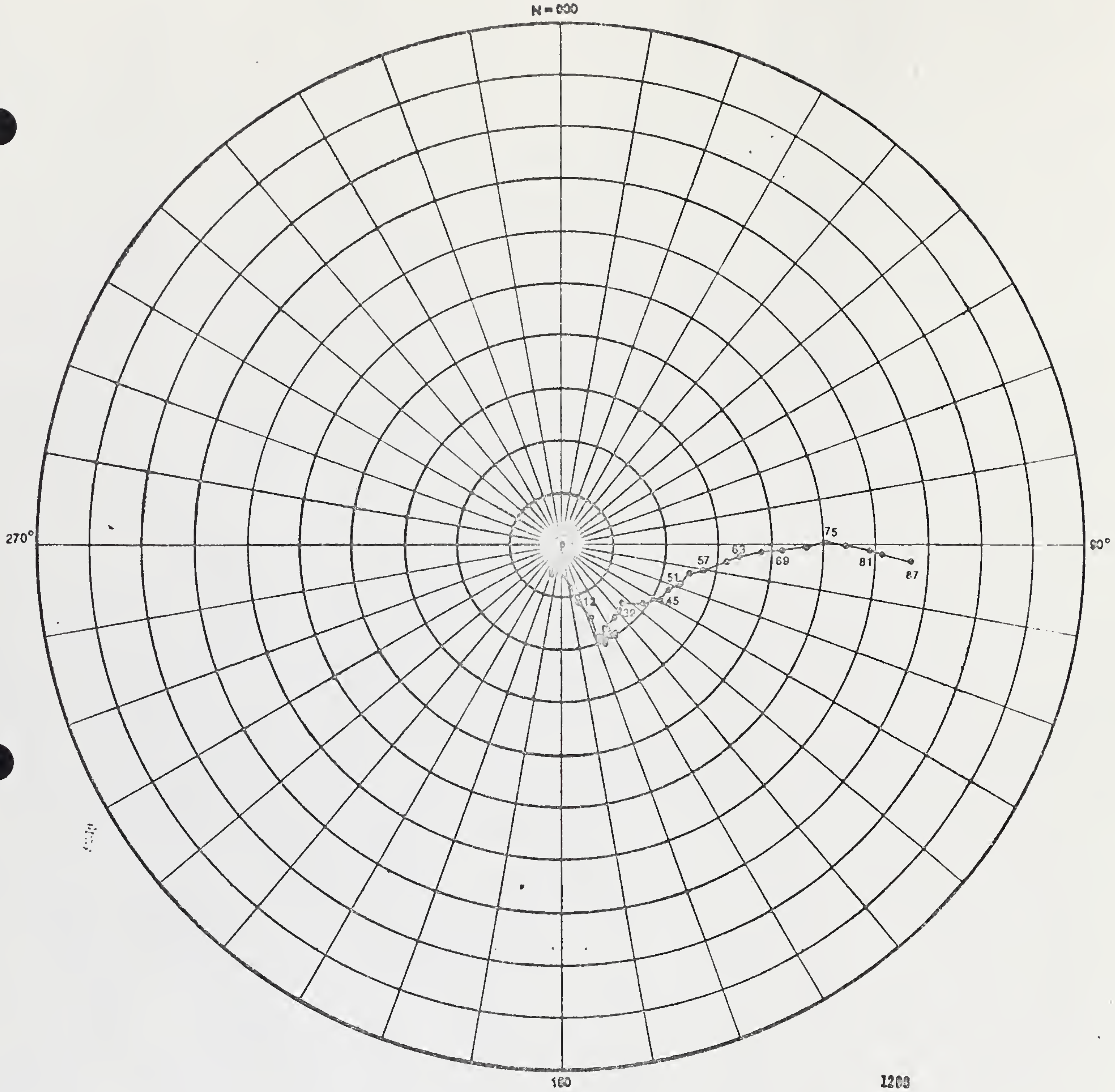


Figure C-14. Pibal Sounding Over Tract C-b on 7 October 1974

1200
10/7/74
1000 ft/div

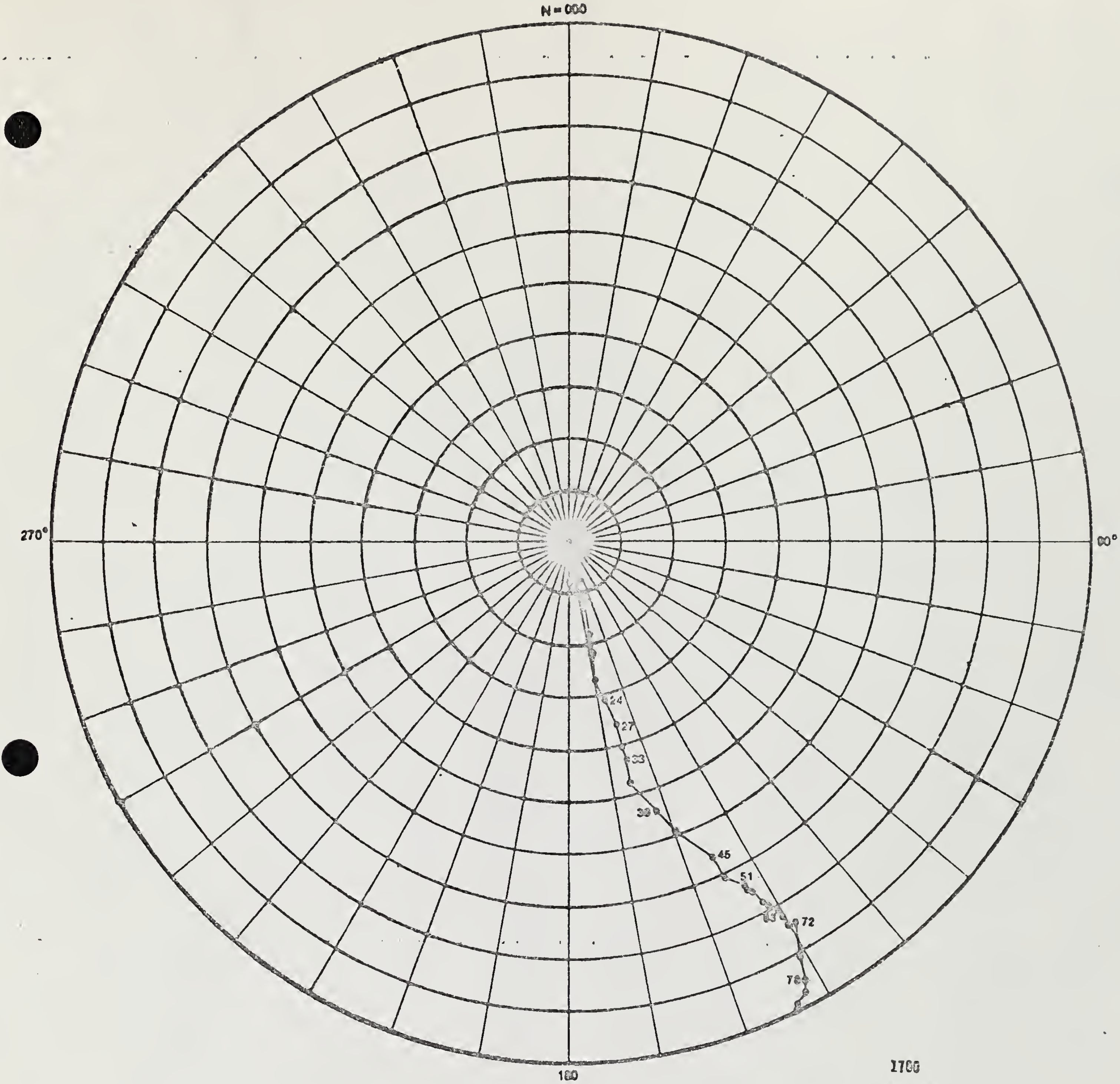
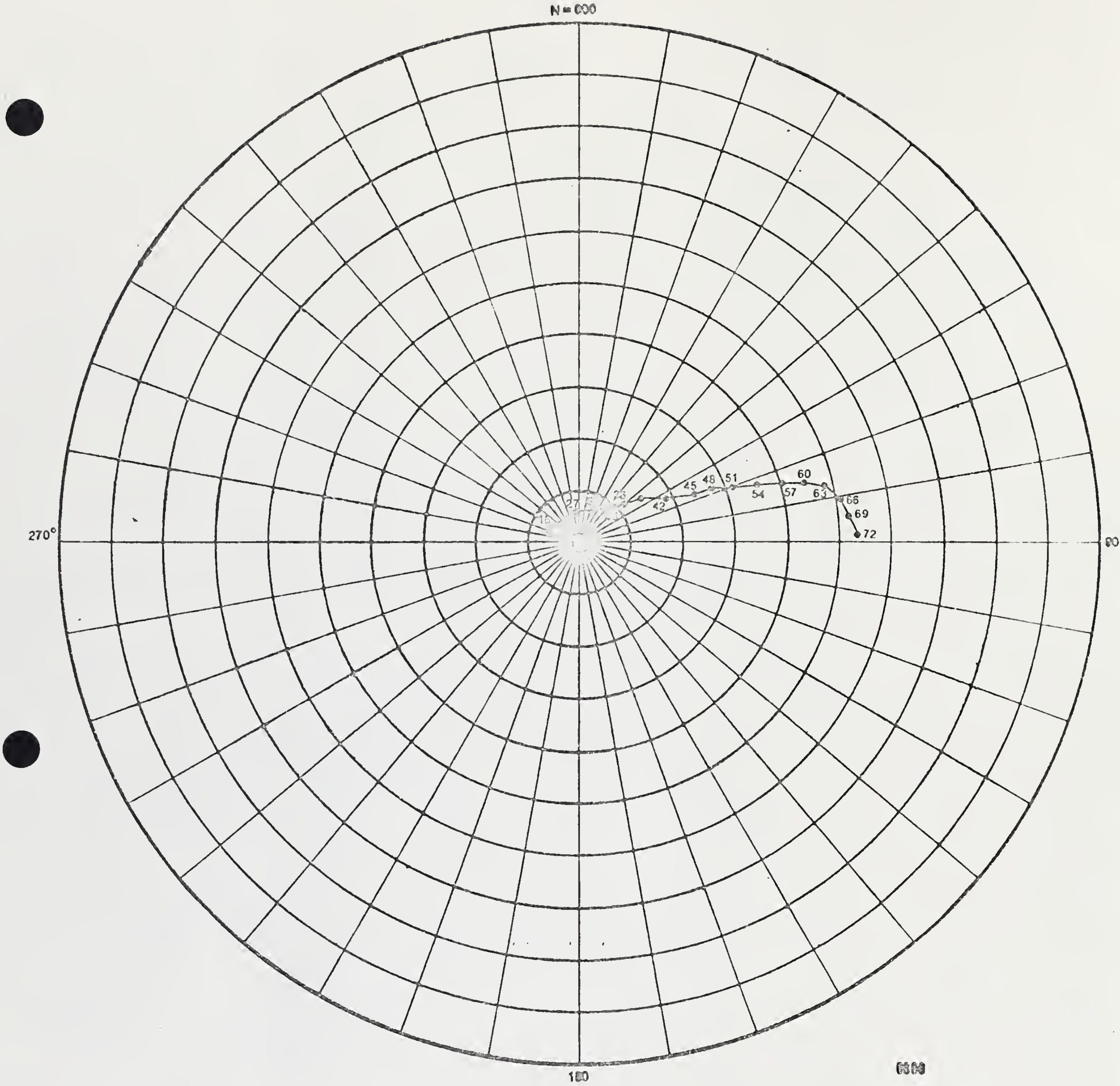


Figure C-15. Pibal Sounding Over Tract C-b on 7 October 1974

1700

10/7/74

1000 ft/div



0800

10/8/74

1000 ft/div

Figure C-16. Pibal Sounding Over Tract C-b on 8 October 1974

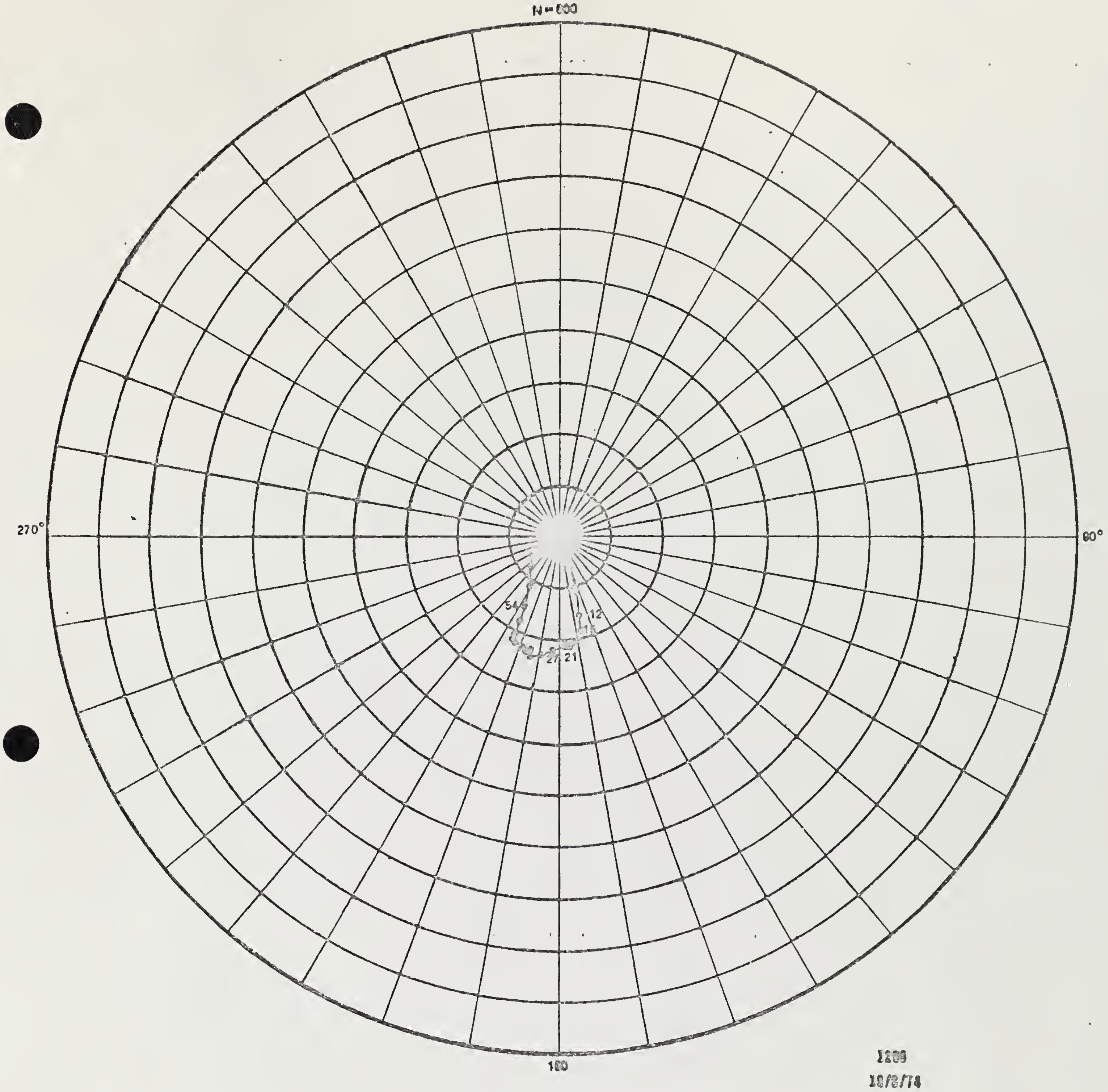
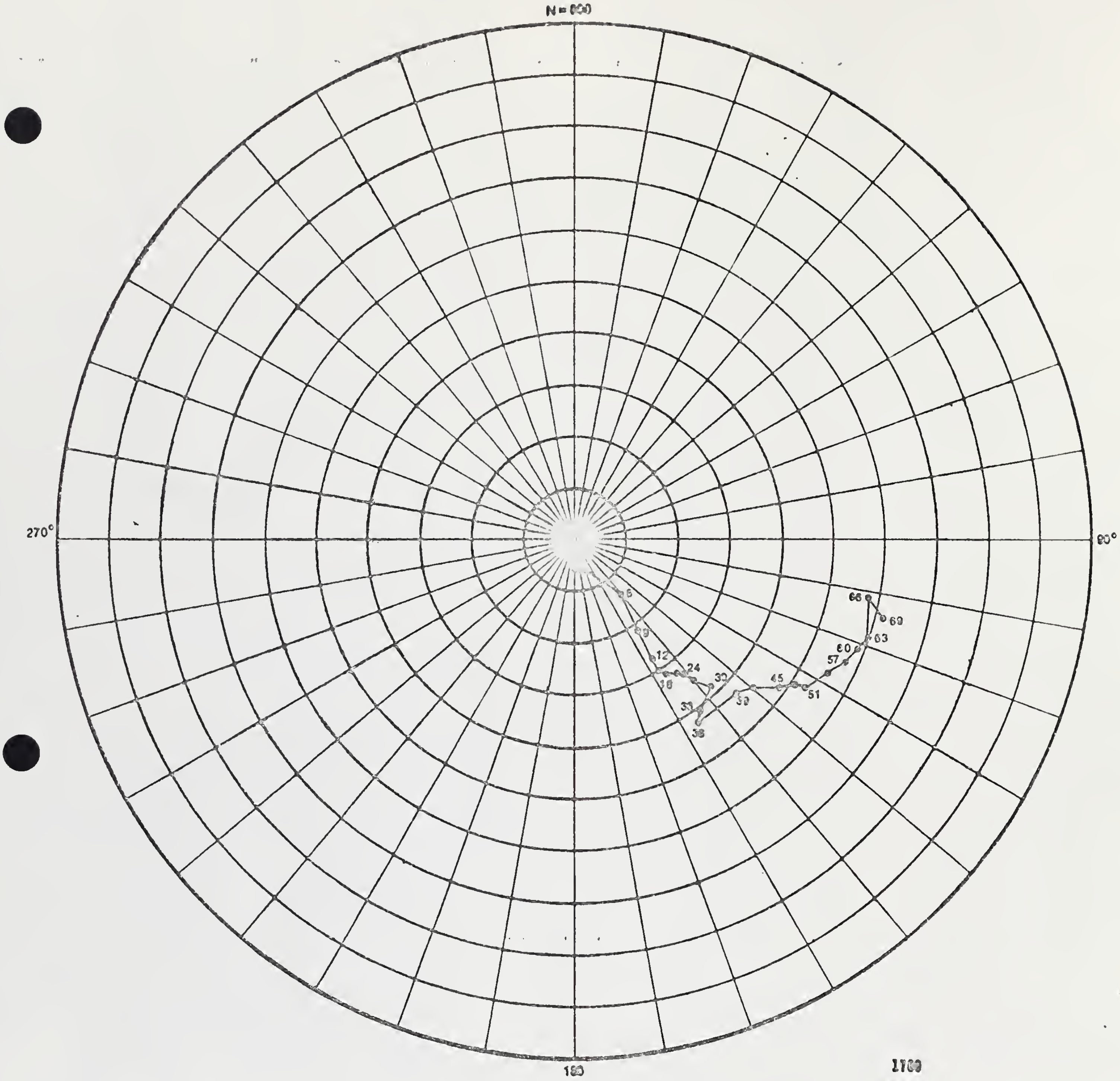


Figure C-17. Pibal Sounding Over Tract C-b on 8 October 1974

1200
10/8/74
1000 ft/div



1700
10/8/74
1000 ft/div

Figure C-18. Pibal Sounding Over Tract C-b on 8 October 1974

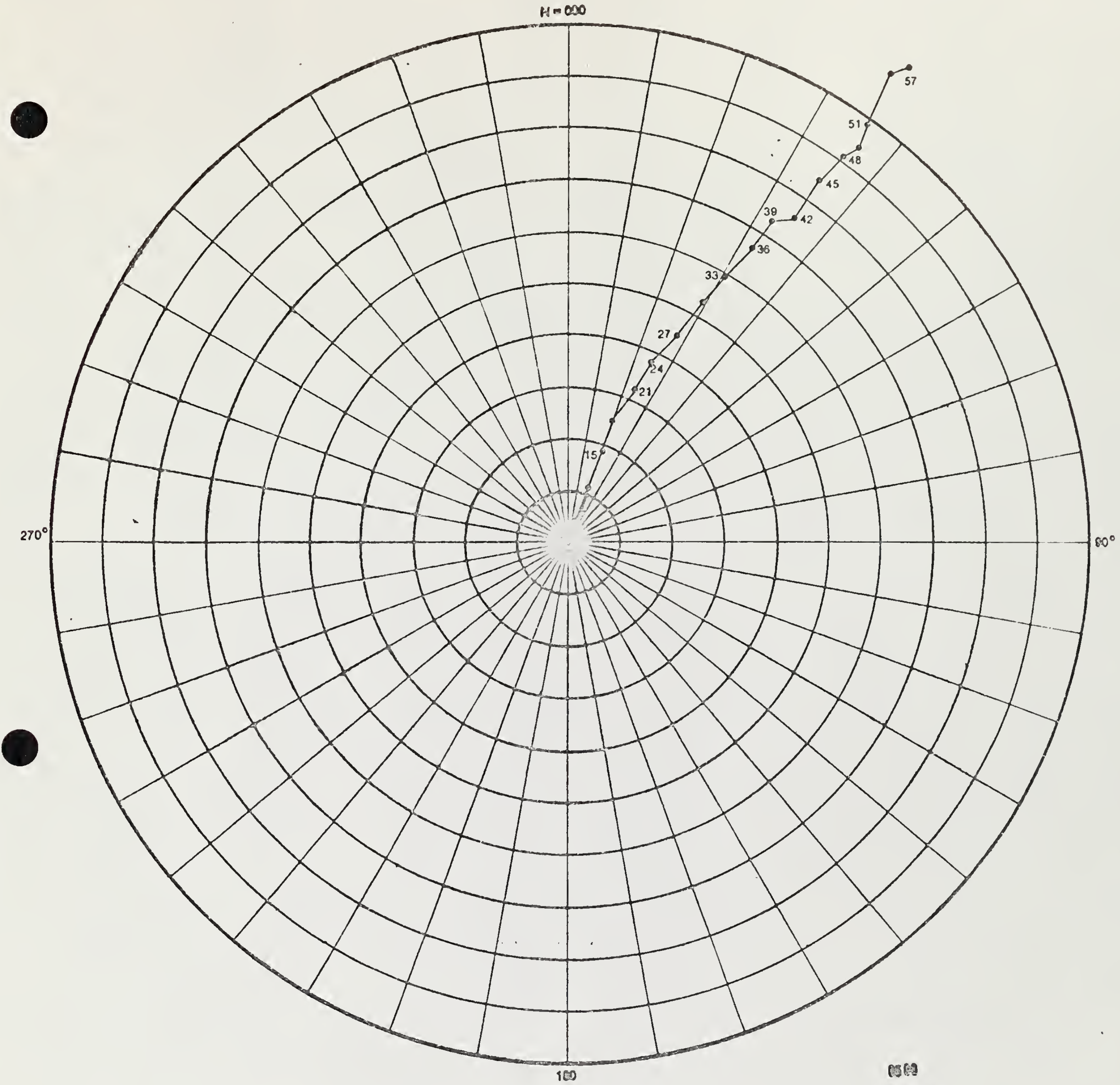


Figure C-19. Pibal Sounding Over Tract C-b on 9 October 1974

[illegible]
10/9/74
2000 ft/div

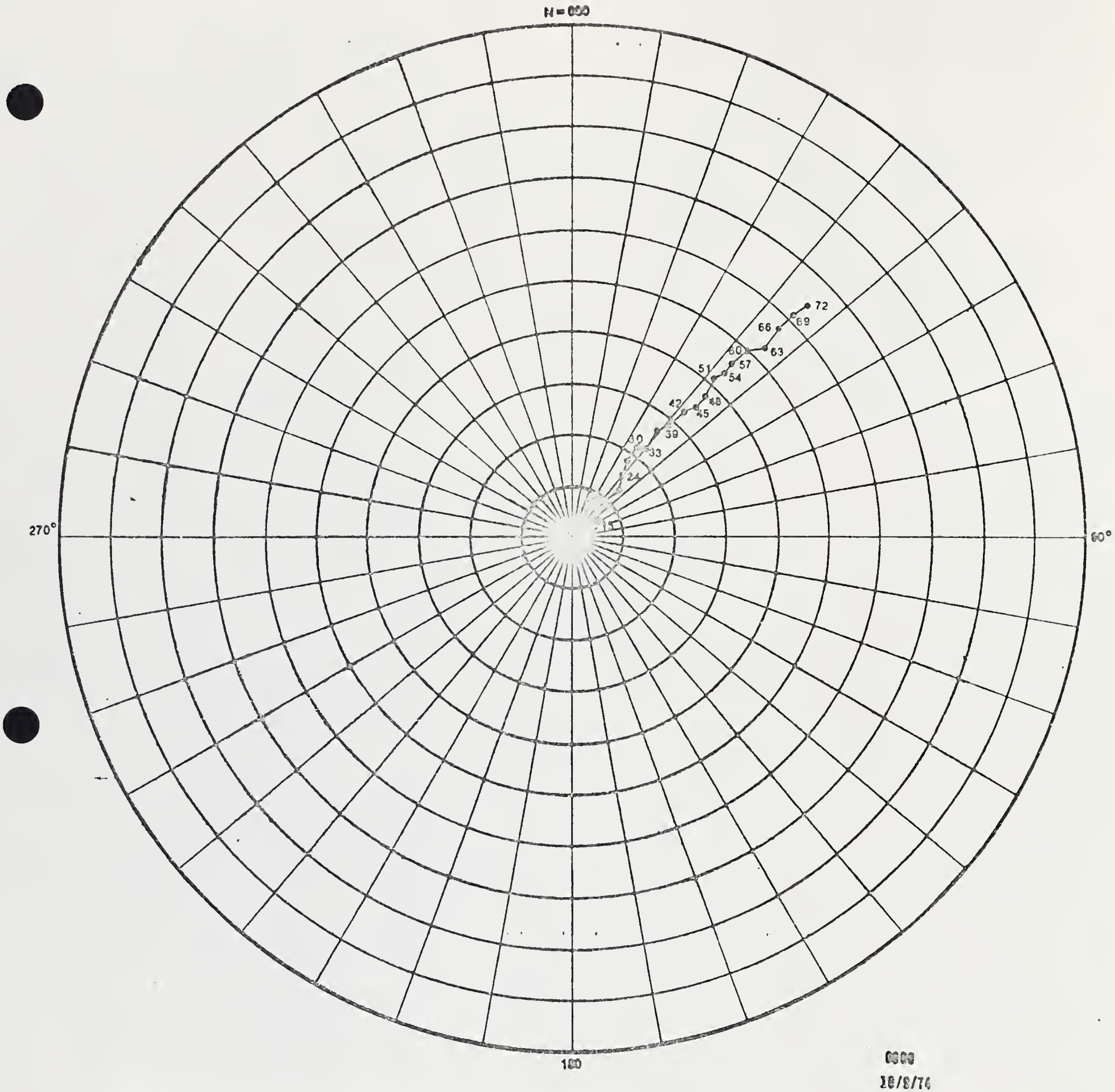


Figure C-20. Pibal Sounding Over Tract C-b on 9 October 1974

[illegible]
10/9/74
[illegible] ft/div

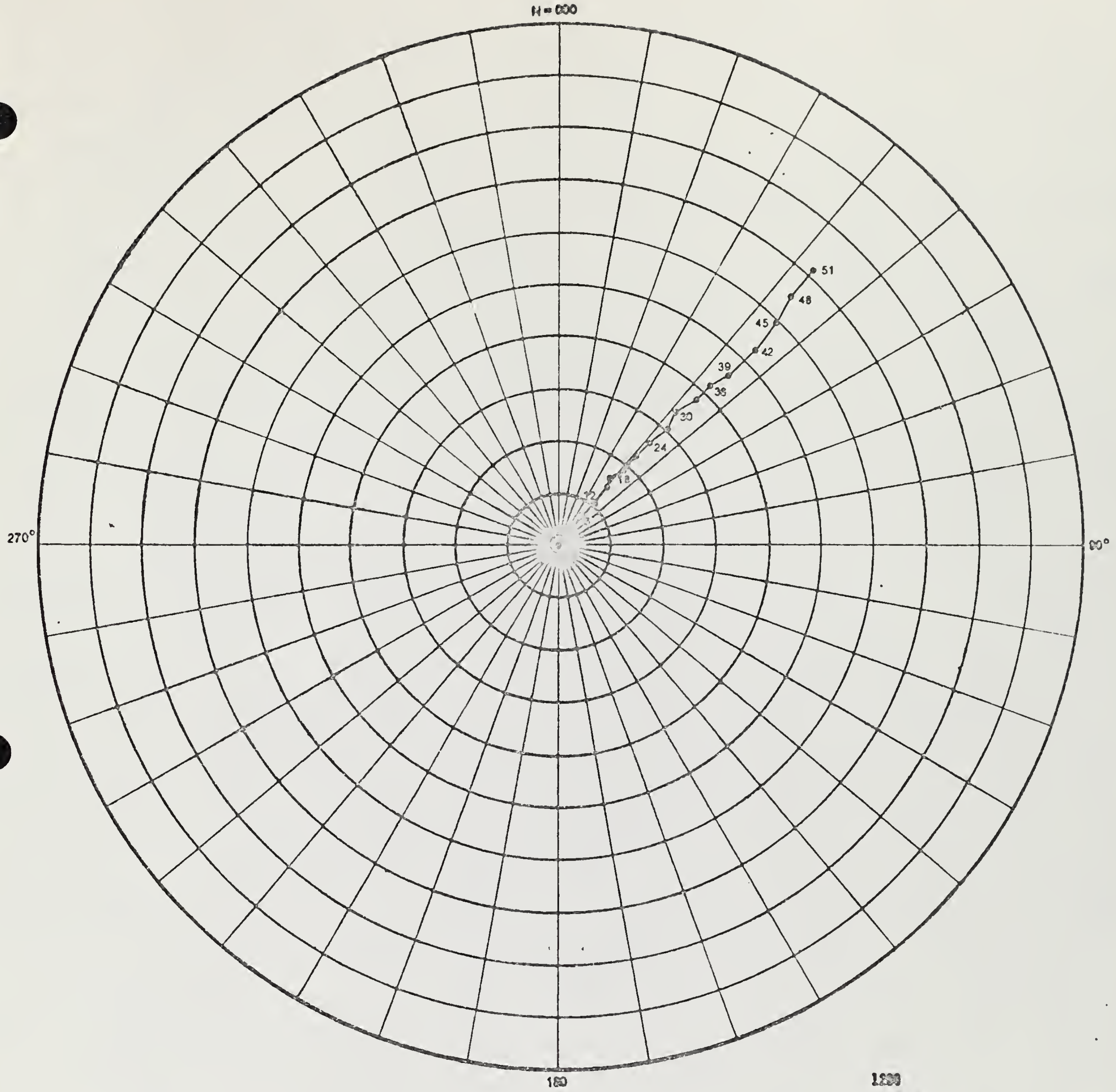


Figure C-21. Pibal Sounding Over Tract C-b on 9 October 1974

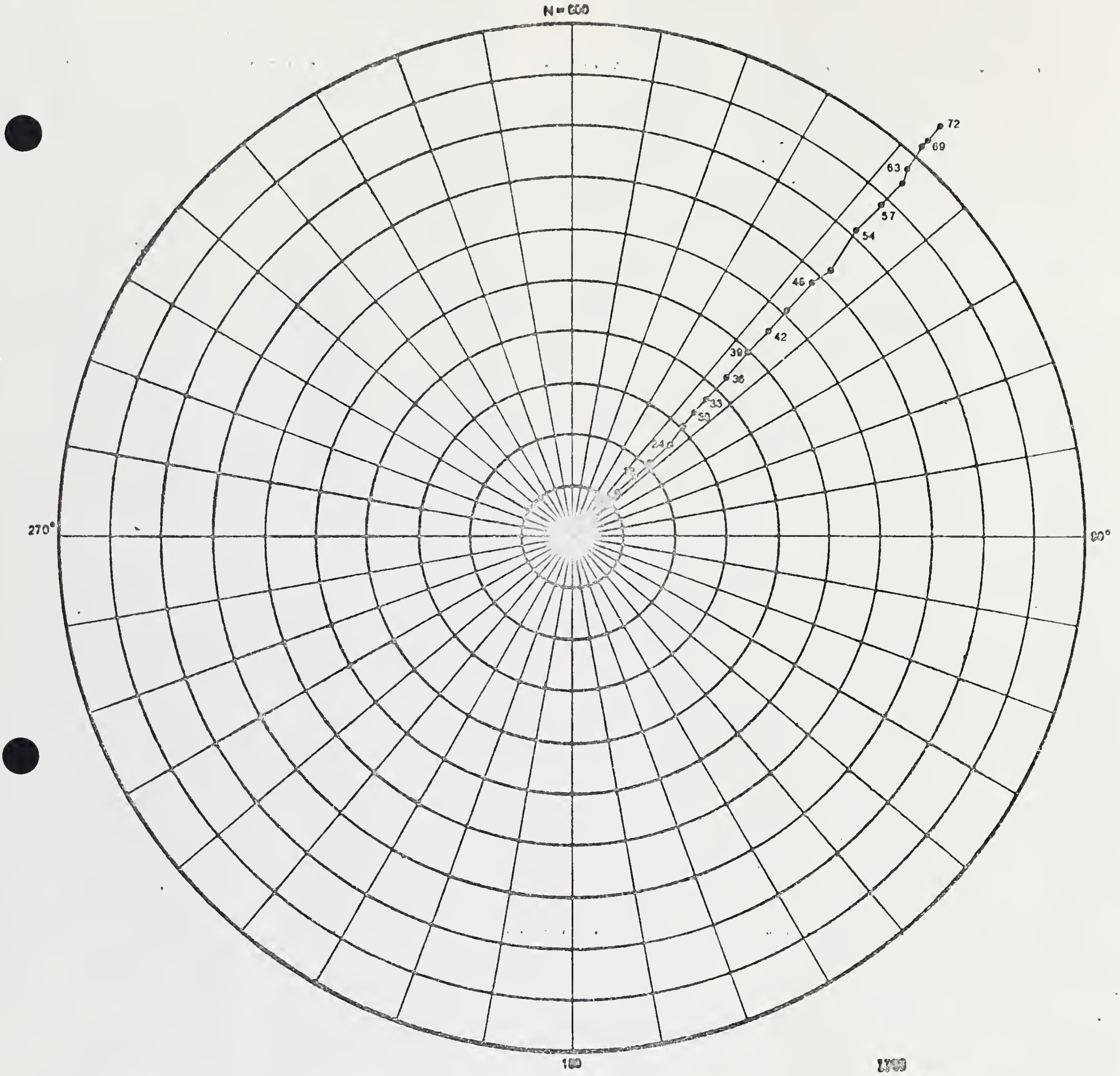
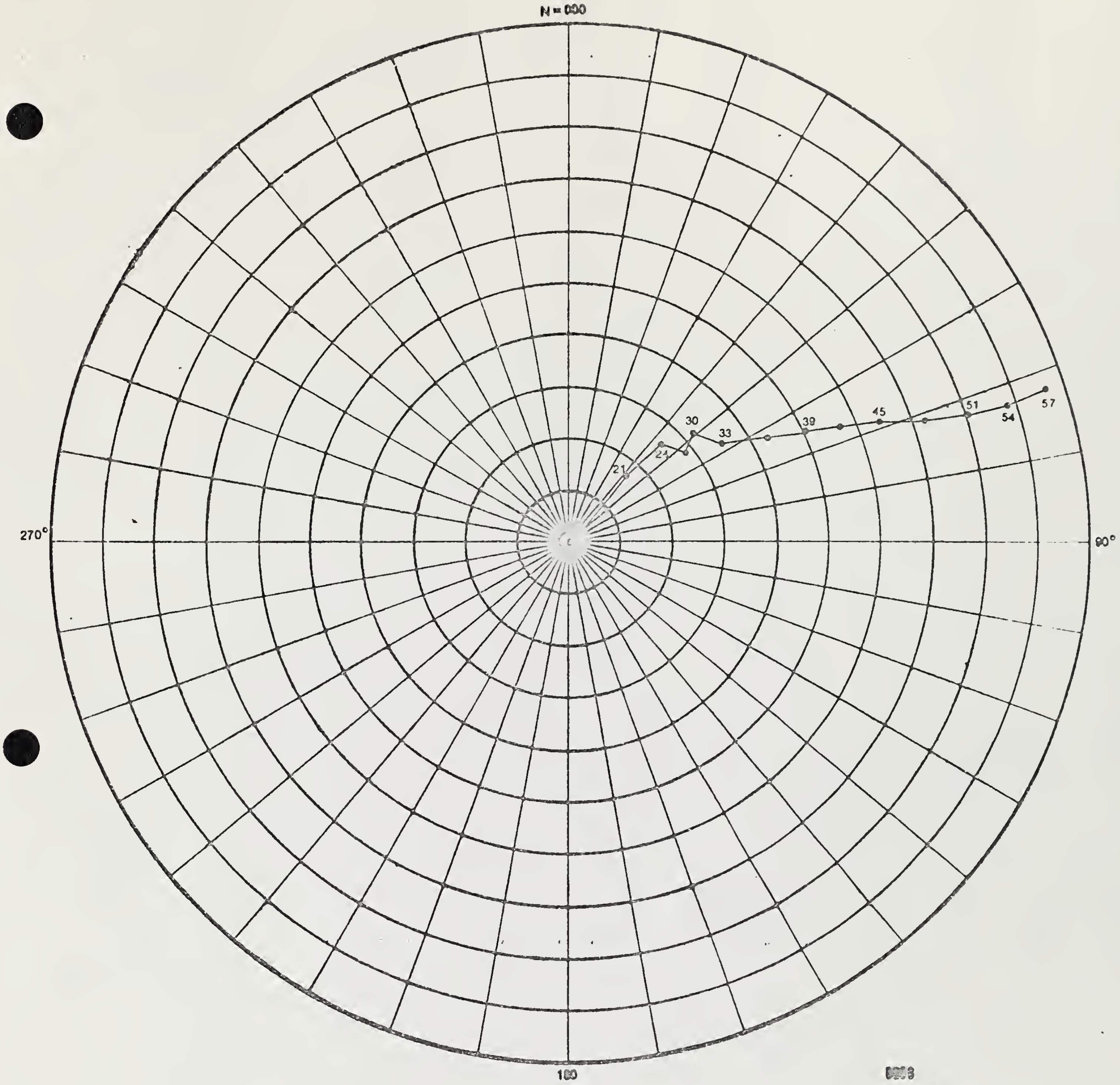


Figure C-22. Pibal Sounding Over Tract C-b on 9 October 1974

[illegible]
12/[illegible]
[illegible] ft/div



[illegible]
10/10/74
1000 ft/div

Figure C-23. Pibal Sounding Over Tract C-b on 10 October 1974

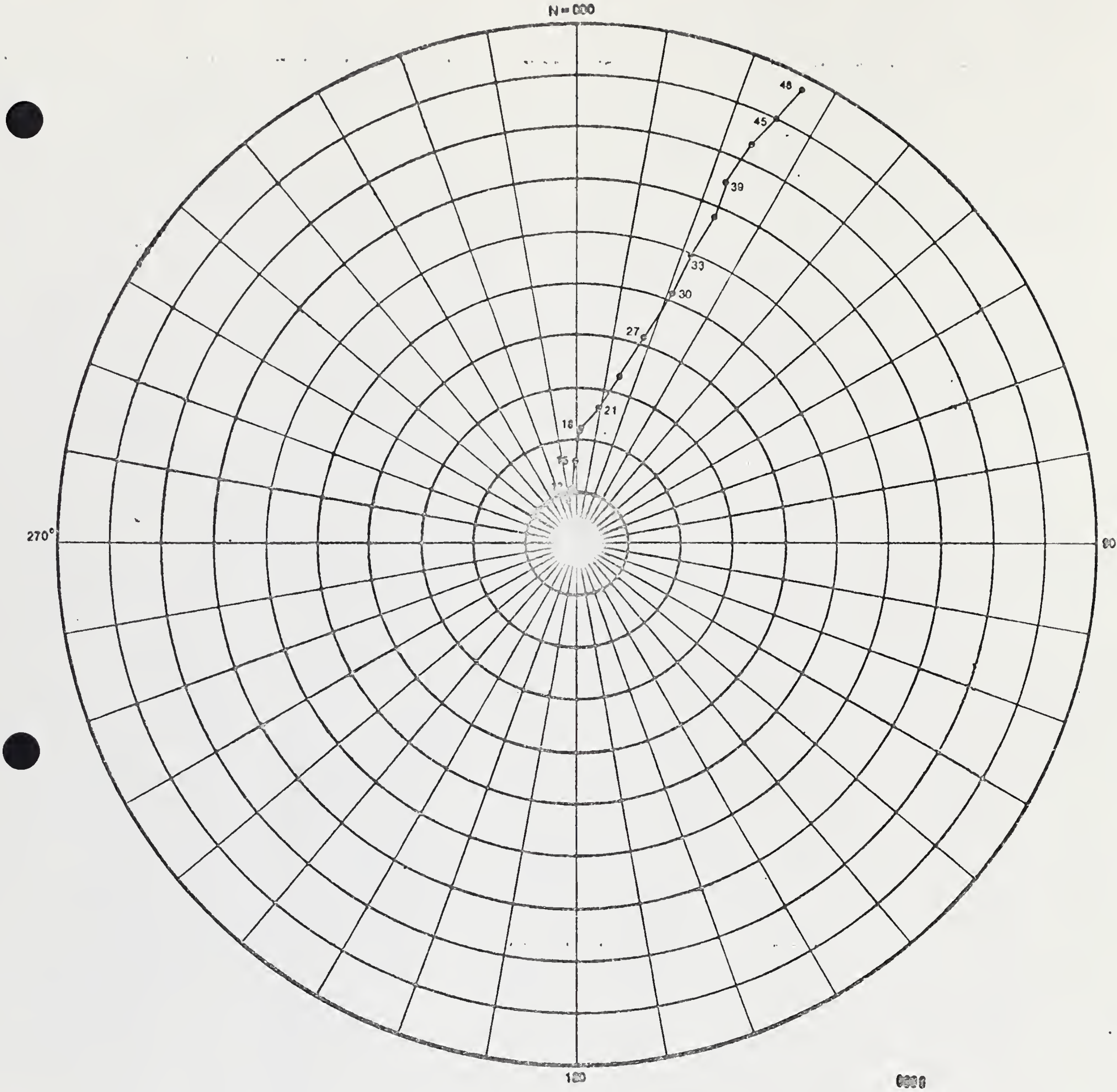


Figure C-24. Pibal Sounding Over Tract C-b on 10 October 1974

[illegible]
10/10/74
1000 ft/div

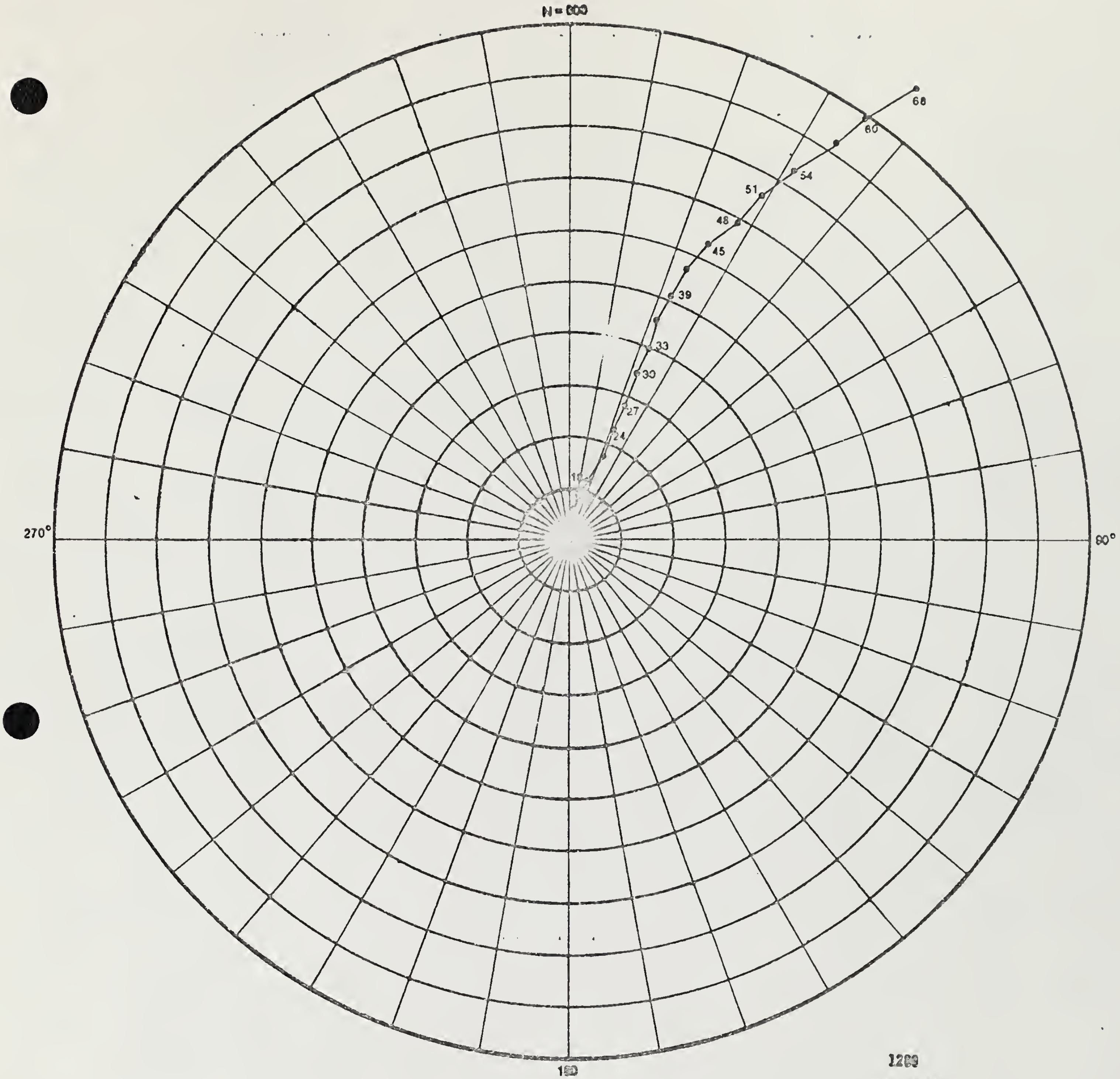
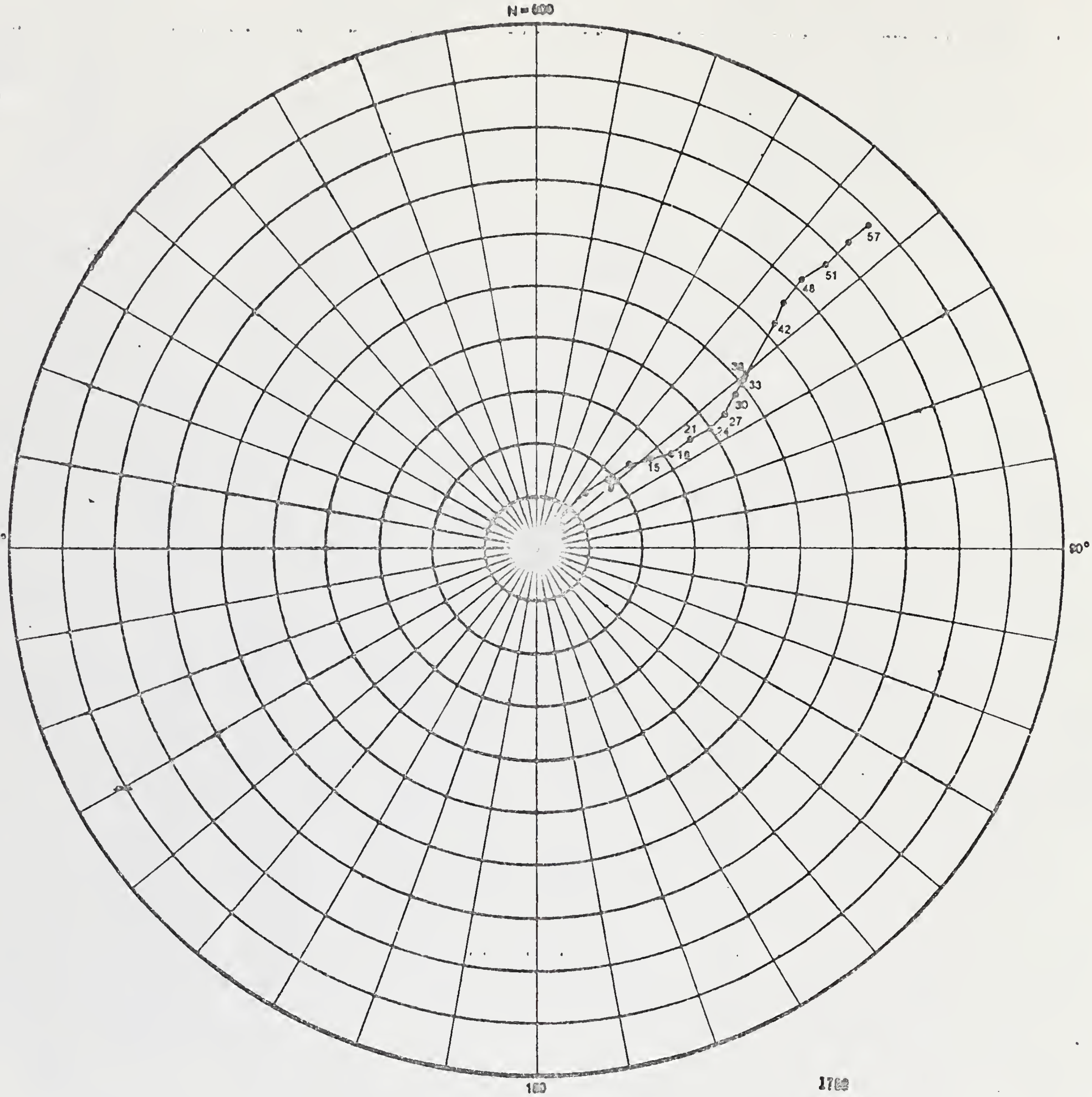
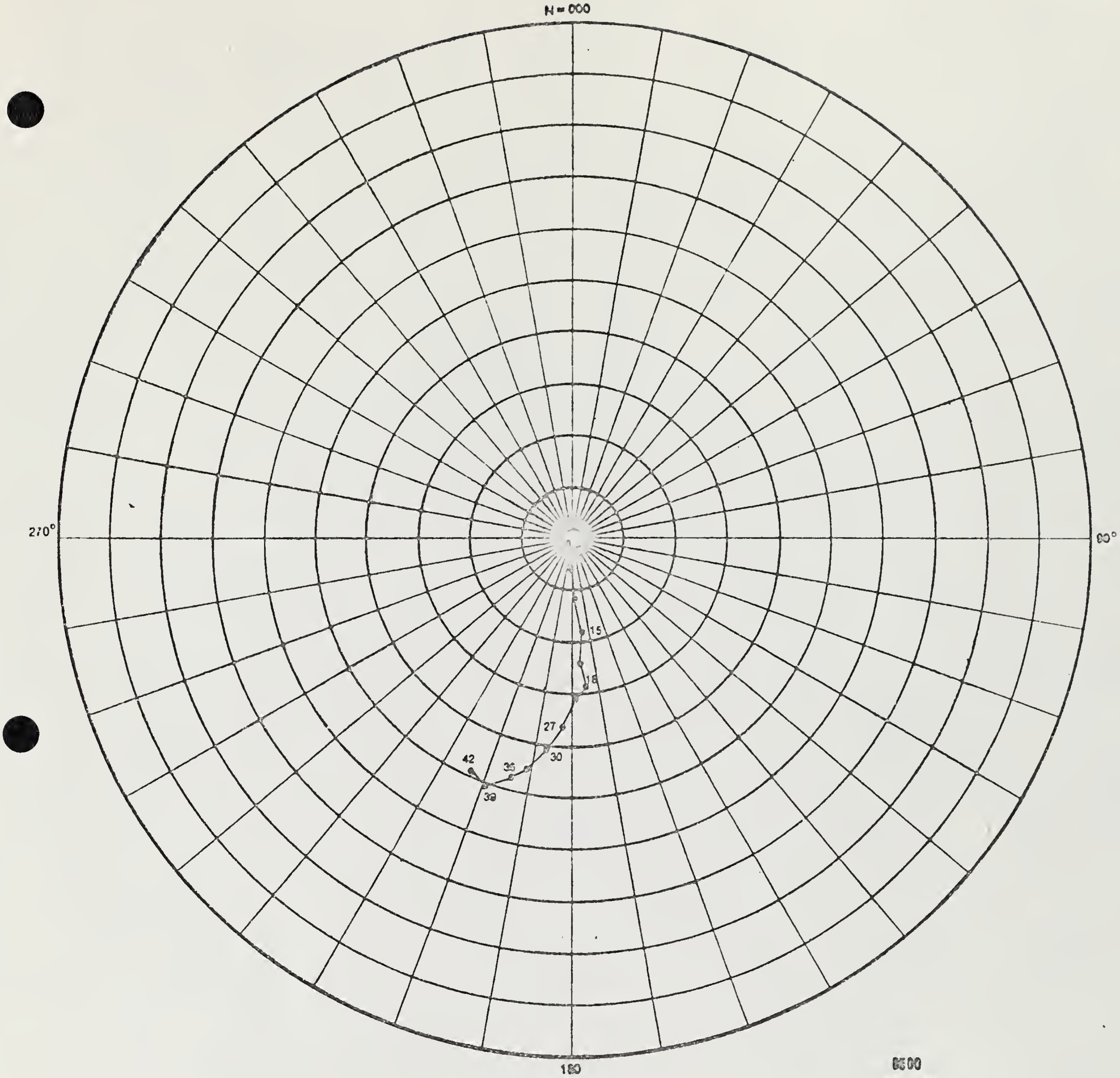


Figure C-25. Pibal Sounding Over Tract C-b on 10 October 1974



17[illegible]
10/10/74
[illegible]

Figure C-26. Pibal Sounding Over Tract C-b on 10 October 1974



0600
10/11/74
1000 ft/div

Figure C-27. Pibal Sounding Over Tract C-b on 11 October 1974

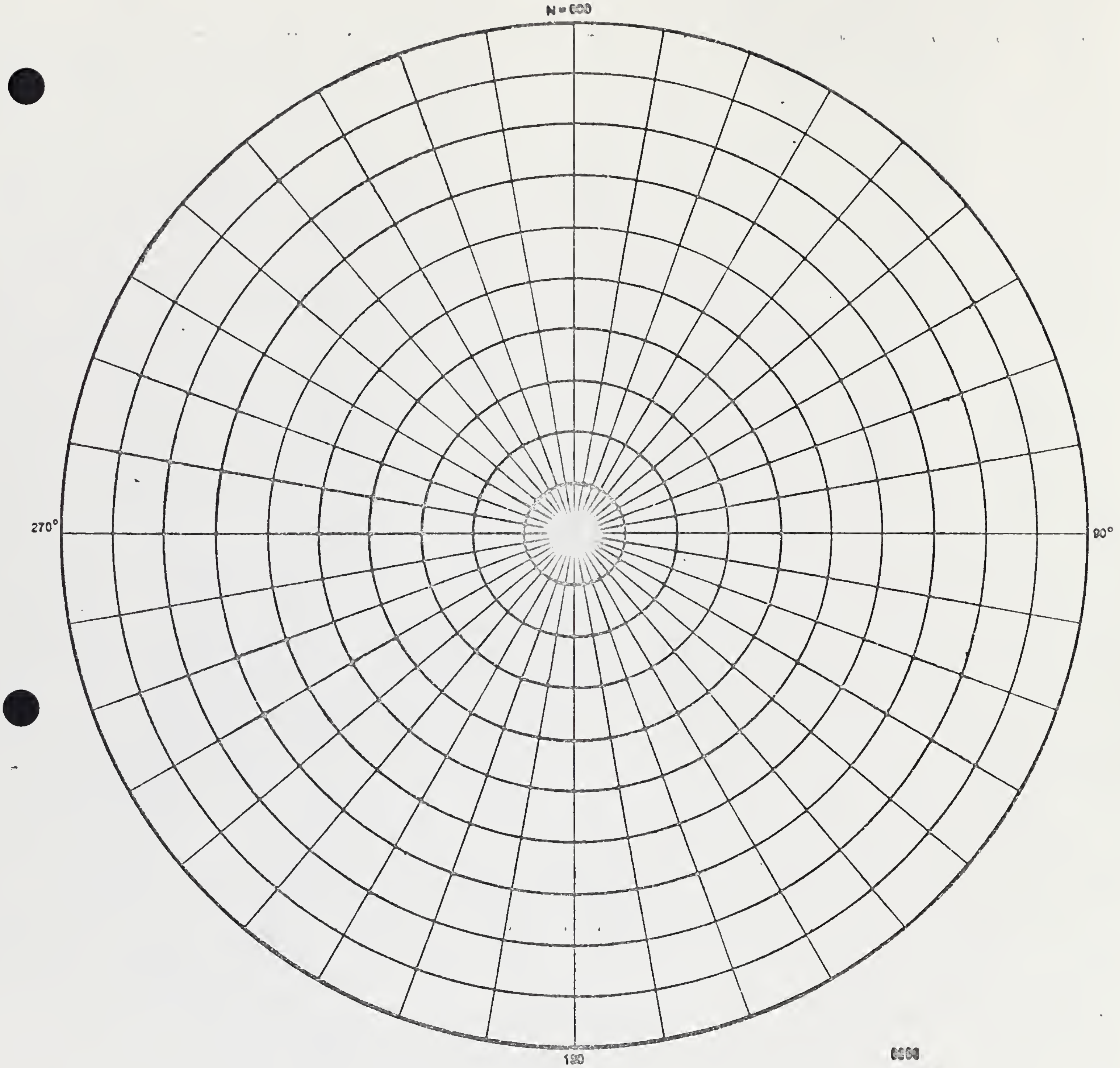


Figure C-28. Pibal Sounding Over Tract C-b on 11 October 1974

0800
10/11/74
200 ft/div

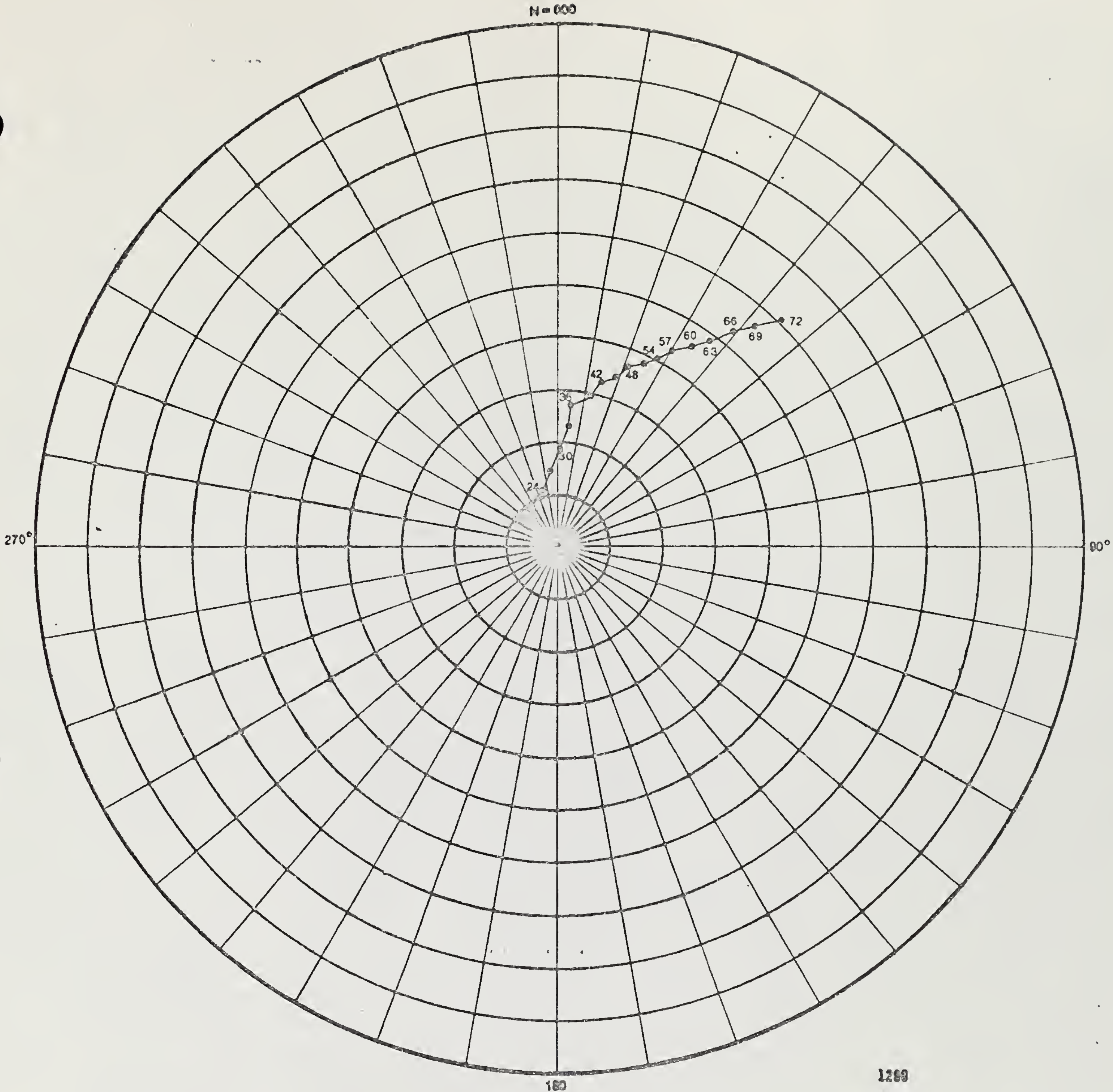


Figure C-29. Pibal Sounding Over Tract C-b on 11 October 1974

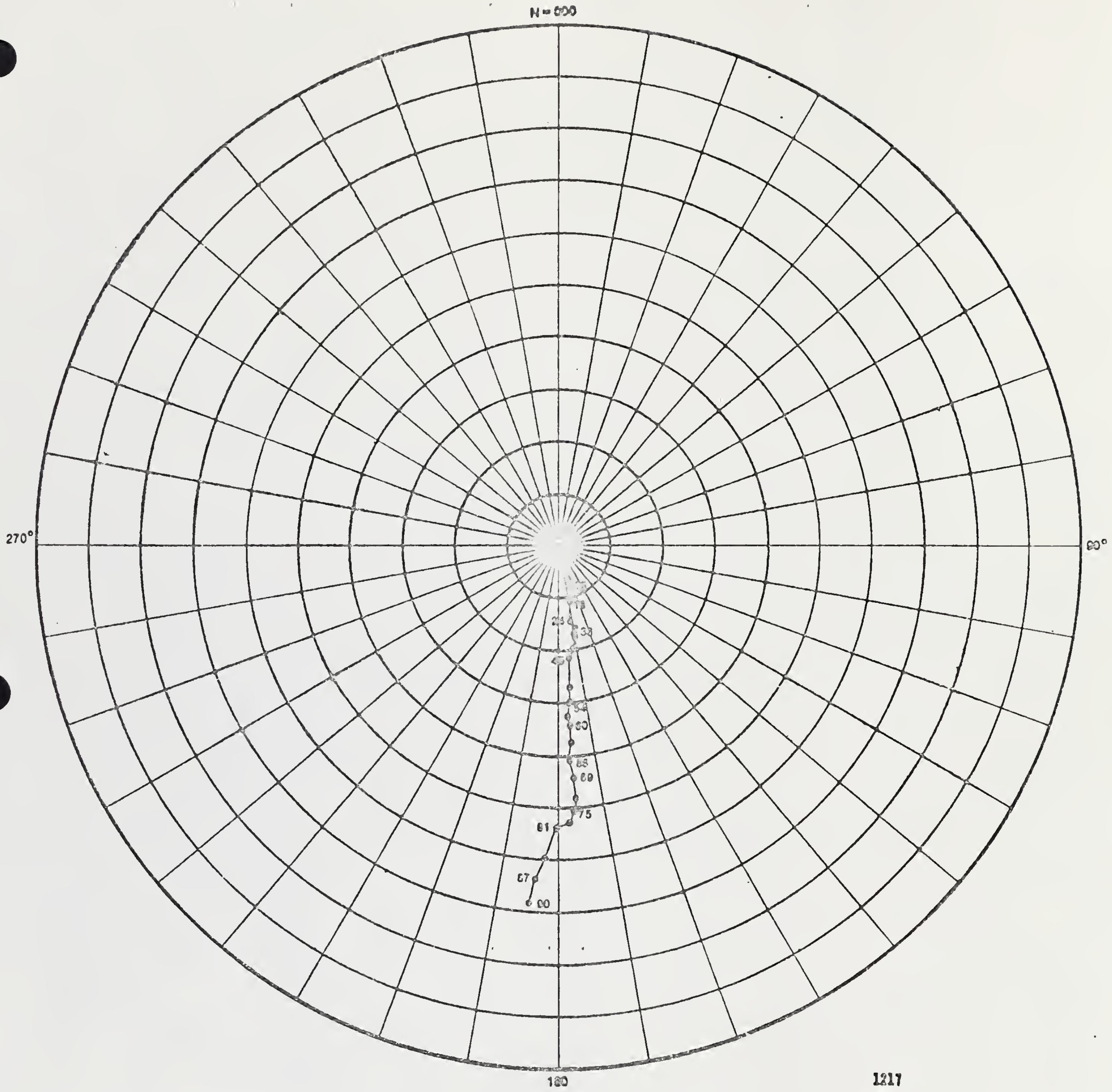
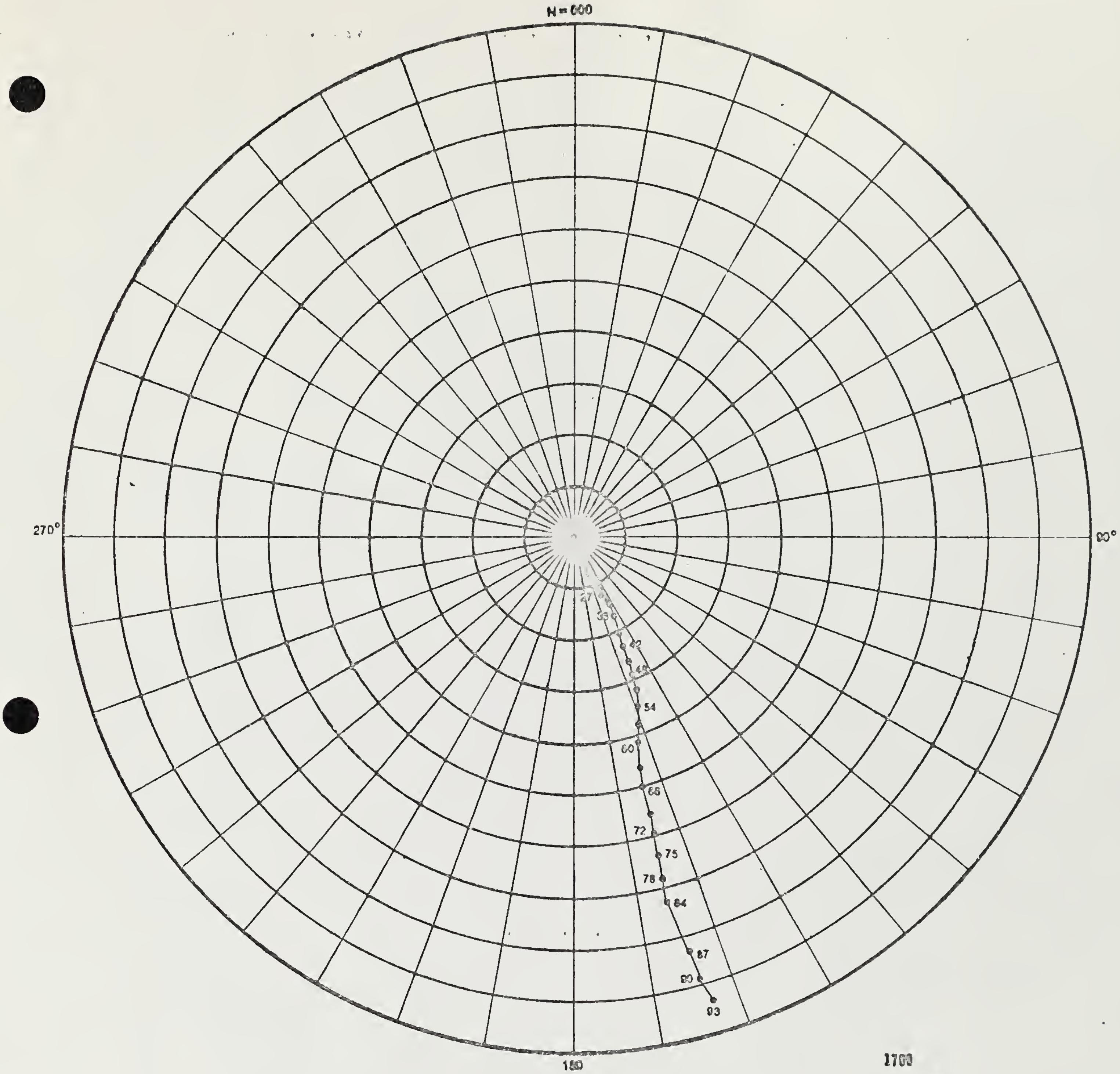


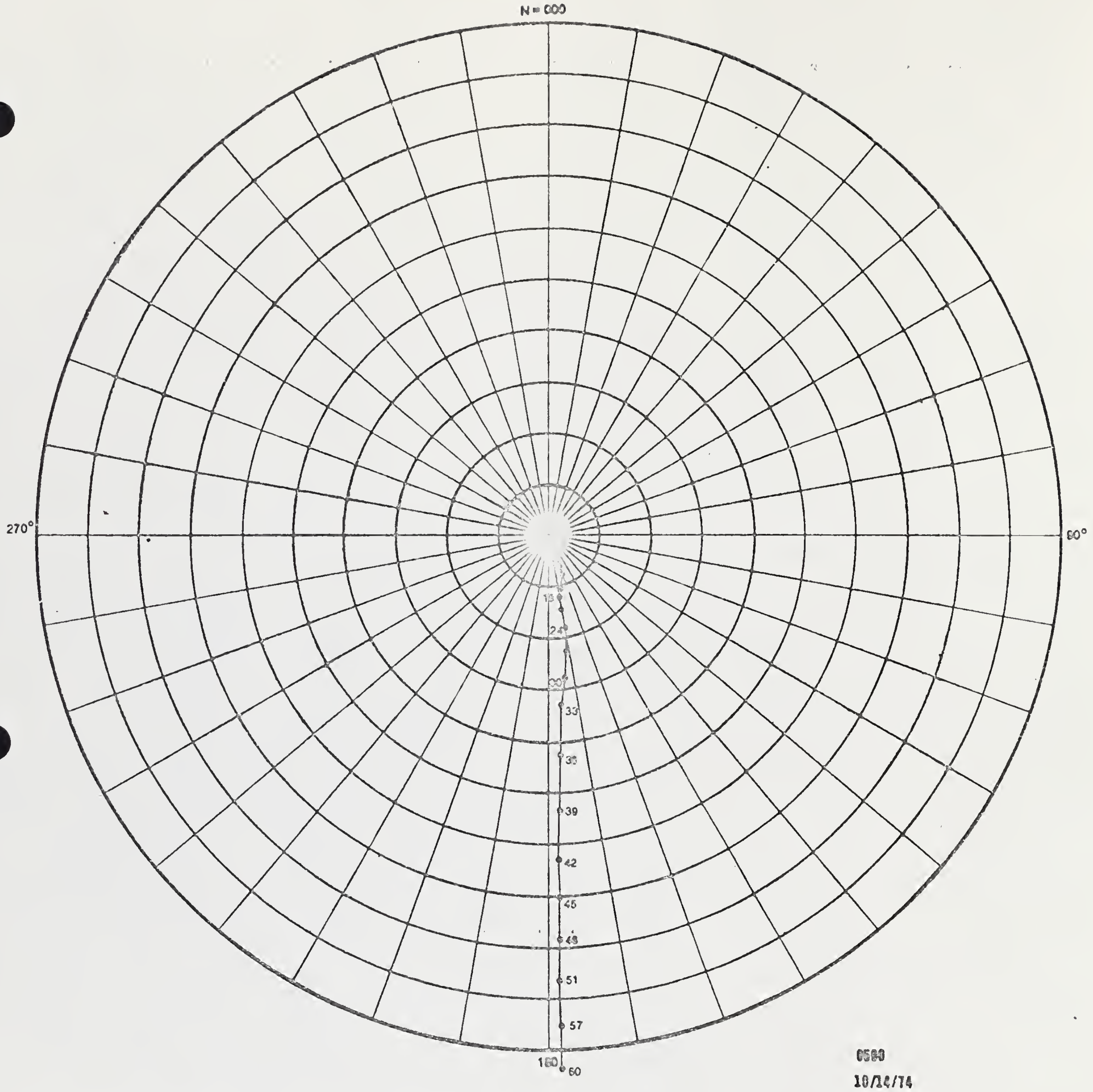
Figure C-30. Pibal Sounding Over Tract C-b on 13 October 1974

1217
10/13/74
2000 ft/div



1700
10/13/74
2000 ft/div

Figure C-31. Pibal Sounding Over Tract C-b on 13 October 1974



0580
10/14/74
2000 ft/div

Figure C-32. Pibal Sounding Over Tract C-b on 14 October 1974

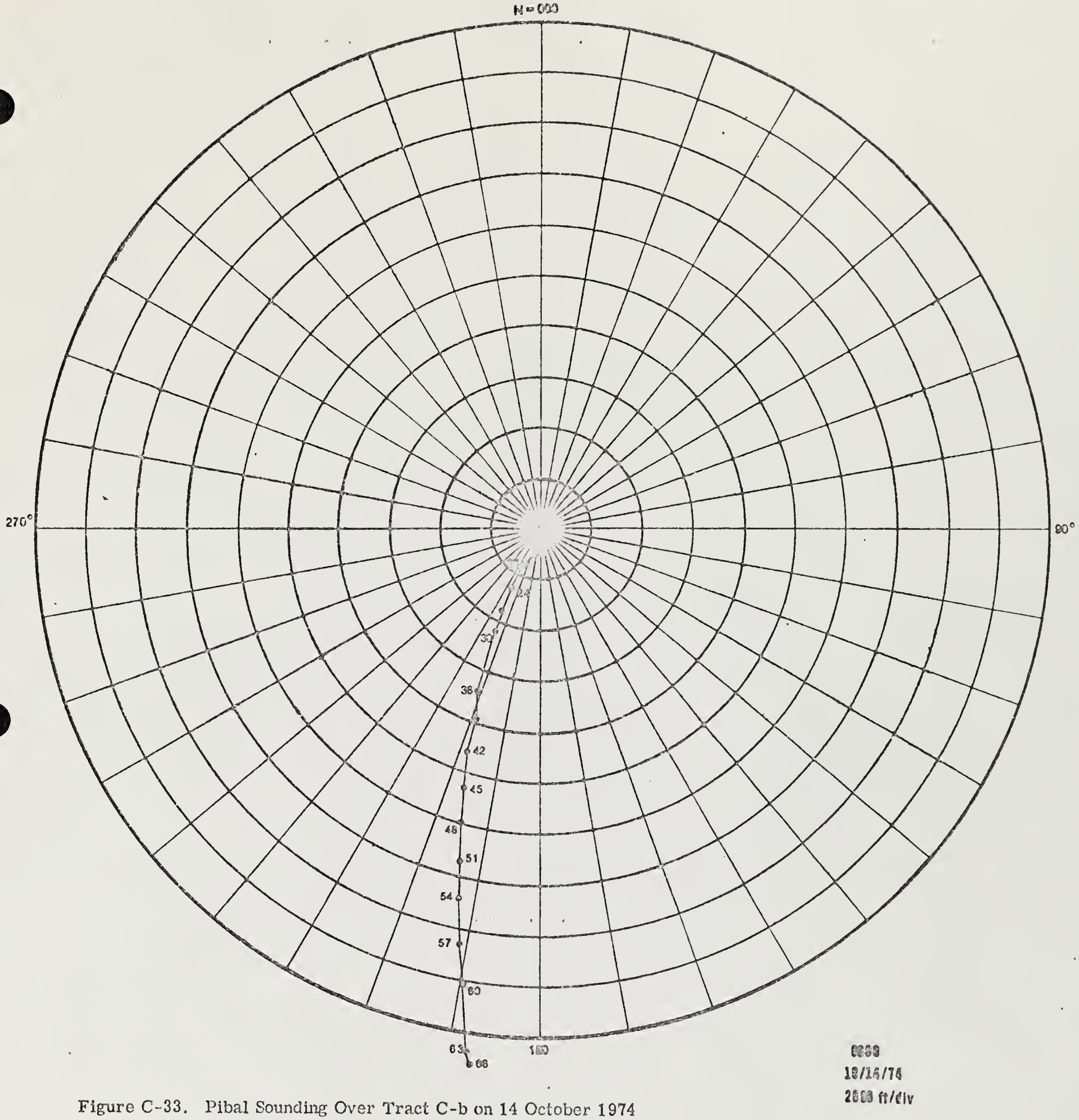
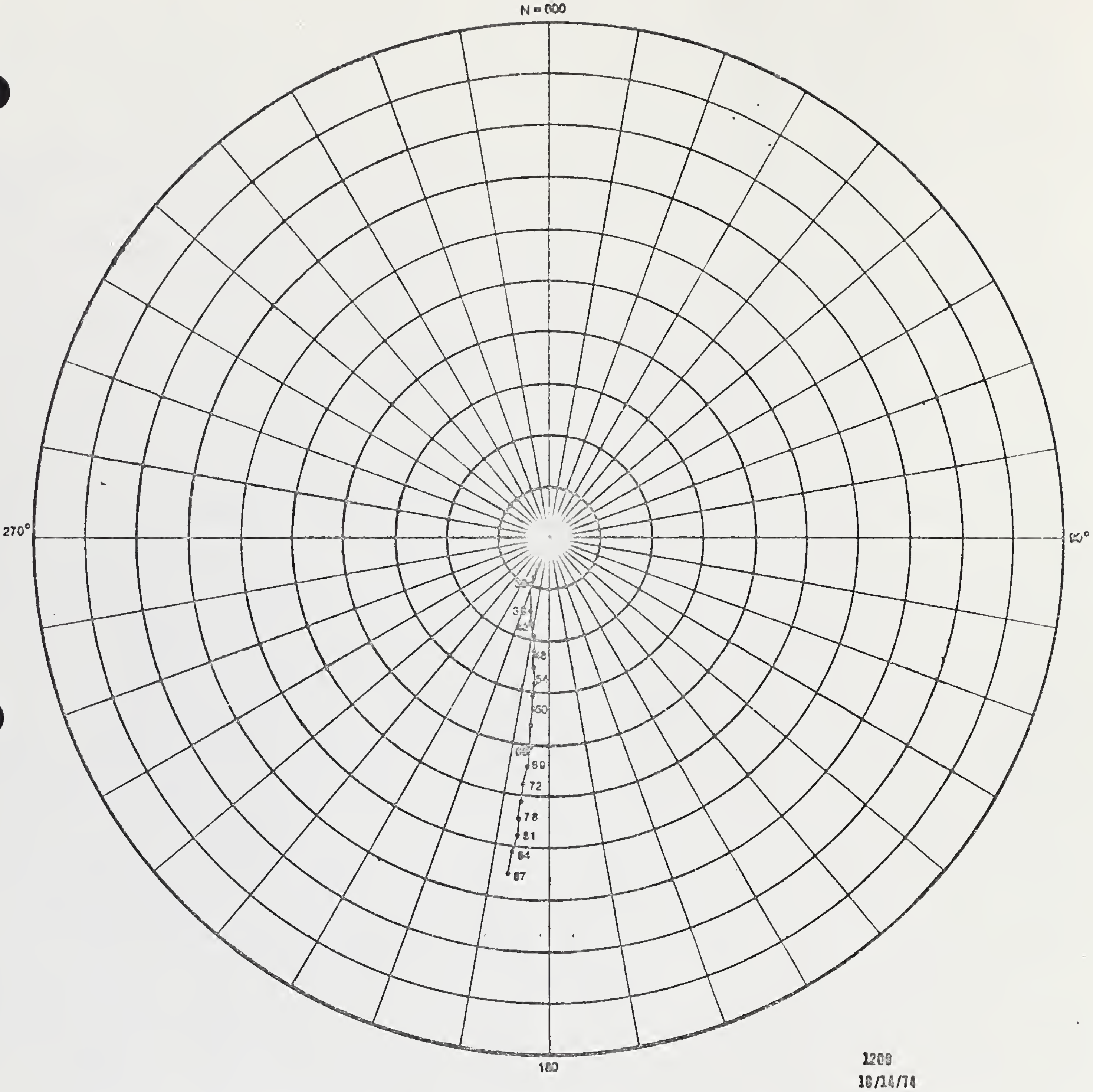


Figure C-33. Pibal Sounding Over Tract C-b on 14 October 1974



1200
10/14/74
4000 ft/div

Figure C-34. Pibal Sounding Over Tract C-b on 14 October 1974

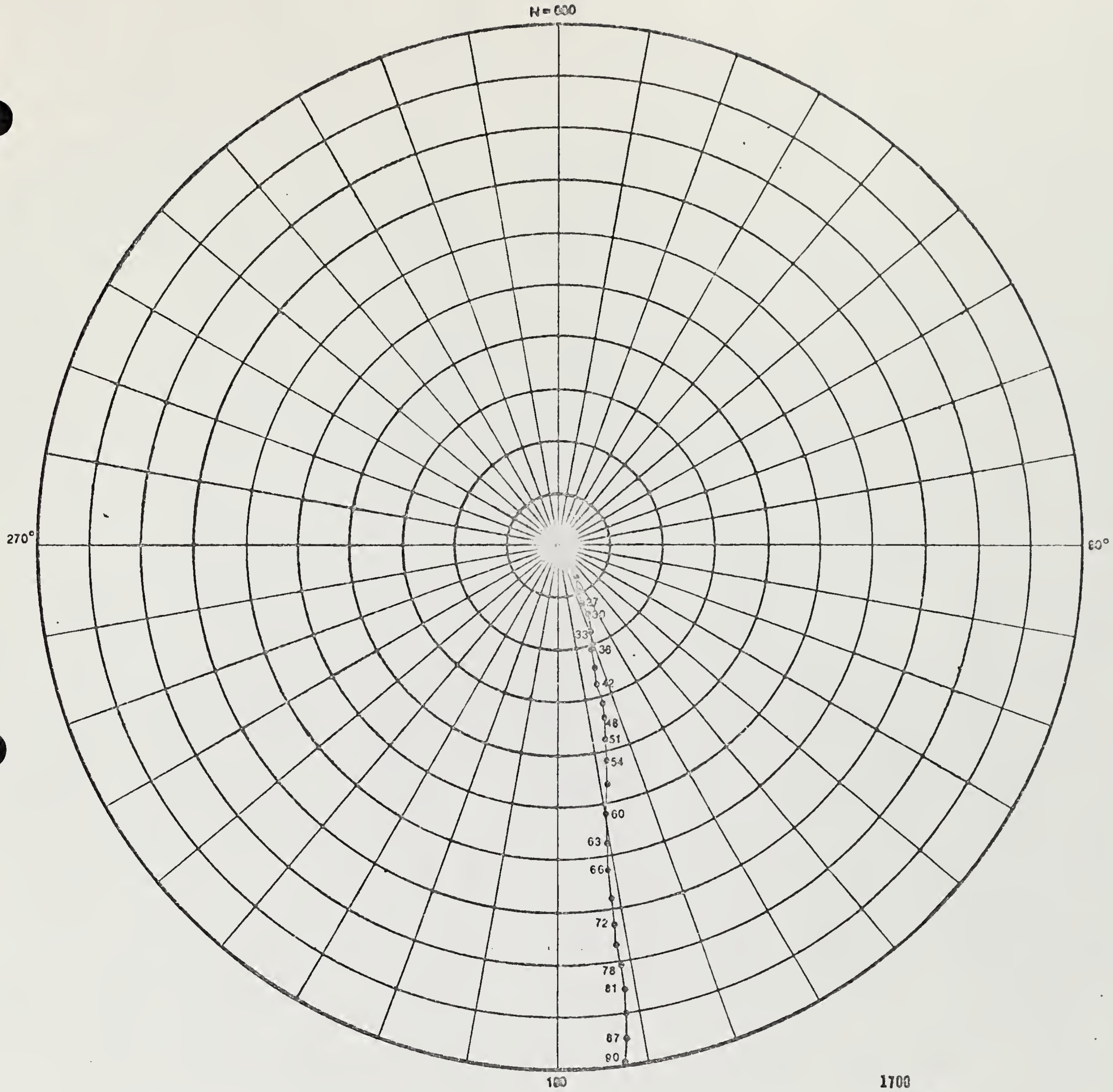


Figure C-35. Pibal Sounding Over Tract C-b on 14 October 1974

1700
10/14/74
2000 ft/div

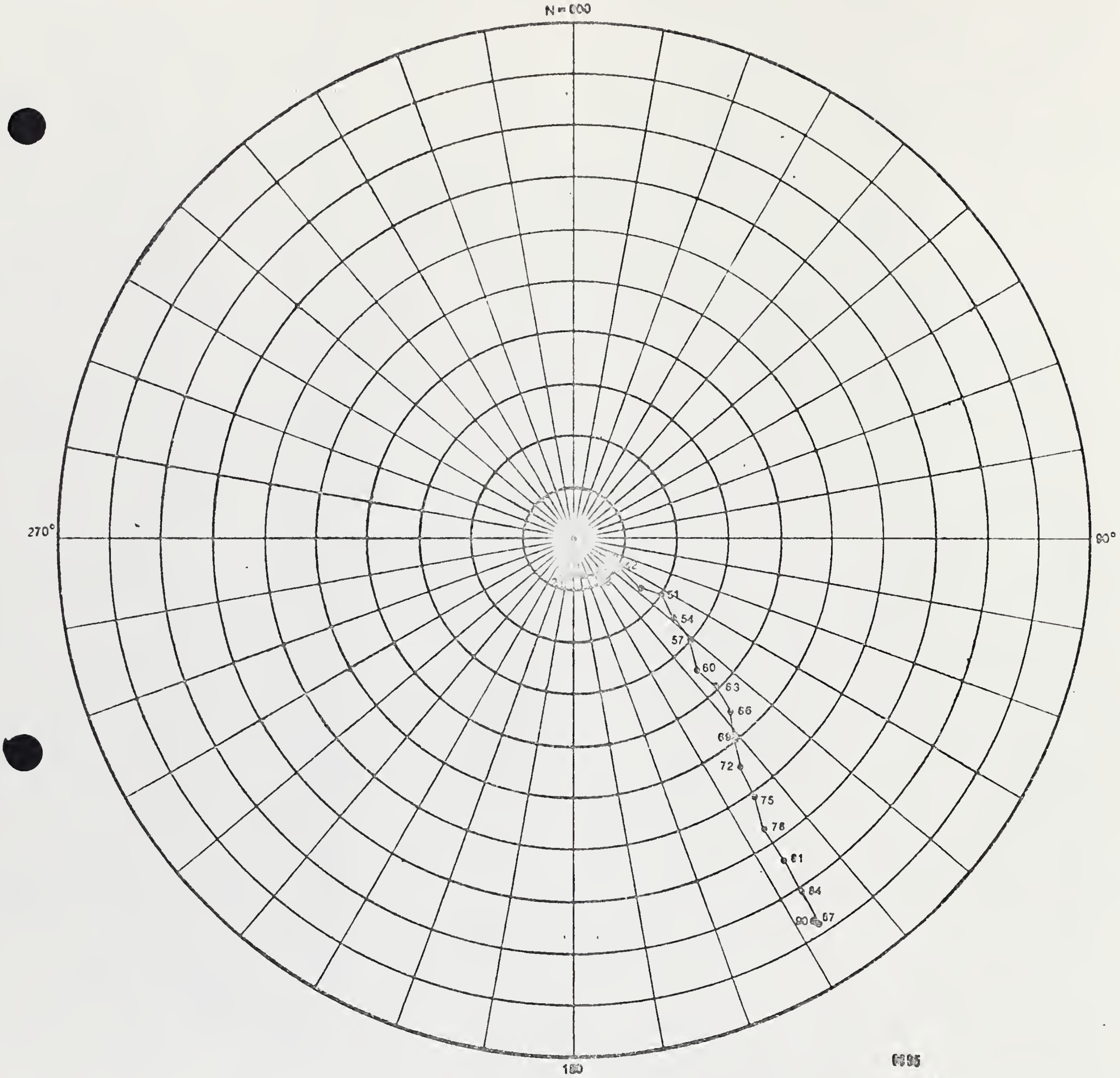


Figure C-36. Pibal Sounding Over Tract C-b on 15 October 1974

0995
10/15/74
2000 ft/div

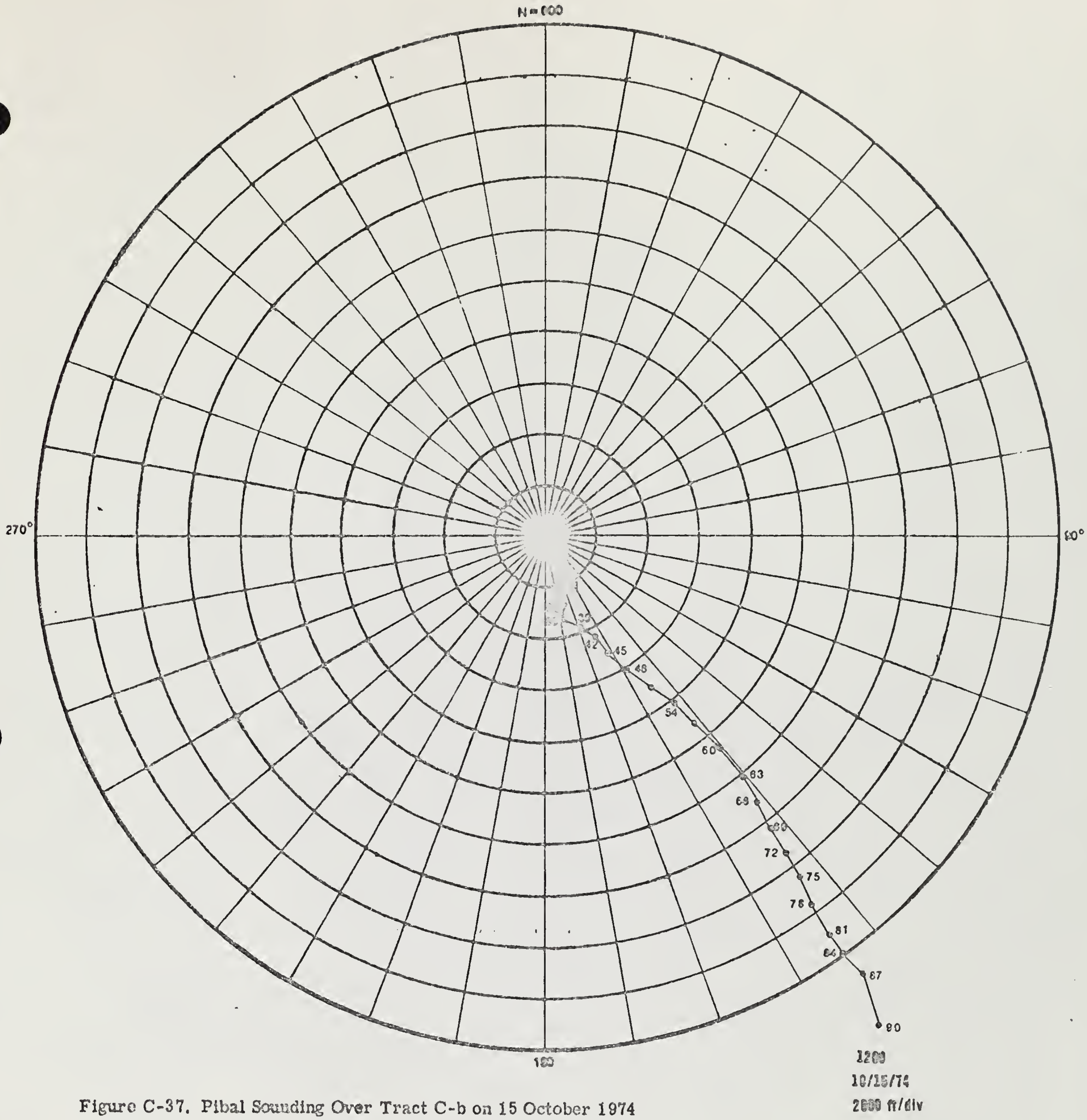


Figure C-37. Pibal Sounding Over Tract C-b on 15 October 1974

E G & G Upper Air Data (Ref 3)

EG&G

AL-ECP-74-109
6 DECEMBER 1974

UPPER AIR CORRELATION STUDIES FOR OCTOBER 1974 BETWEEN FEDERAL OIL SHALE TRACTS C-a, C-b AND GRAND JUNCTION, COLO.

PREPARED FOR
THE ATLANTIC RICHFIELD COMPANY
AND
THE RIO BLANCO OIL SHALE PROJECT

APPROVED BY

L C Meyer

L. C. MEYER, PhD
PROGRAM MANAGER

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1.0 INTRODUCTION

This report summarizes and presents correlations between data taken over Federal Oil Shale Tracts C-a and C-b and Grand Junction, Colorado. A topographic map of the oil shale tract area is shown in Figure 1. To a lesser extent, comparisons with soundings over Salt Lake City, Utah and Denver, Colorado are also presented. A map showing the relative positions of the tracts and the primary National Weather Service stations is shown in Figure 2. The data were taken during the period 1 October through 15 October 1974 with primary emphasis on the vertical temperature profile and wind structure from the surface to 13,000 feet above MSL.

The studies over Tract C-a were performed for the Rio Blanco Oil Shale Project and the studies over C-b were performed for the Atlantic Richfield Company. National Weather Service data from Grand Junction, Salt Lake City, and Denver were obtained from the EG&G field office in Durango over a Weather Service facsimile machine. Tract C-a and Tract C-b soundings were made four times daily at approximately 05:00, 08:00, 12:00 and 17:00 hours MST whereas National Weather Service soundings were only made at 12:00 and 24:00 hours GMT. The purpose of the 08:00 and 12:00 soundings over the oil shale tracts was to investigate primarily the formation and breakup of surface inversions.

Because of the present sparsity of on site meteorological data at the two oil shale tracts, no attempt is made in this report to correlate the upper air data in terms of both winds aloft and lapse rates to diffusion estimates. It is anticipated that all future studies of this type will be supported by surface meteorological data at both tracts.

1.1 BRIEF SUMMARY

The topography of the Federal Oil Shale Tracts C-a and C-b is complex. The wind structure above the tracts depends heavily upon the upper (500mb) level flows as well as the detailed surface topography. Contrary to first expectations, from the limited data available it appears that the Salt

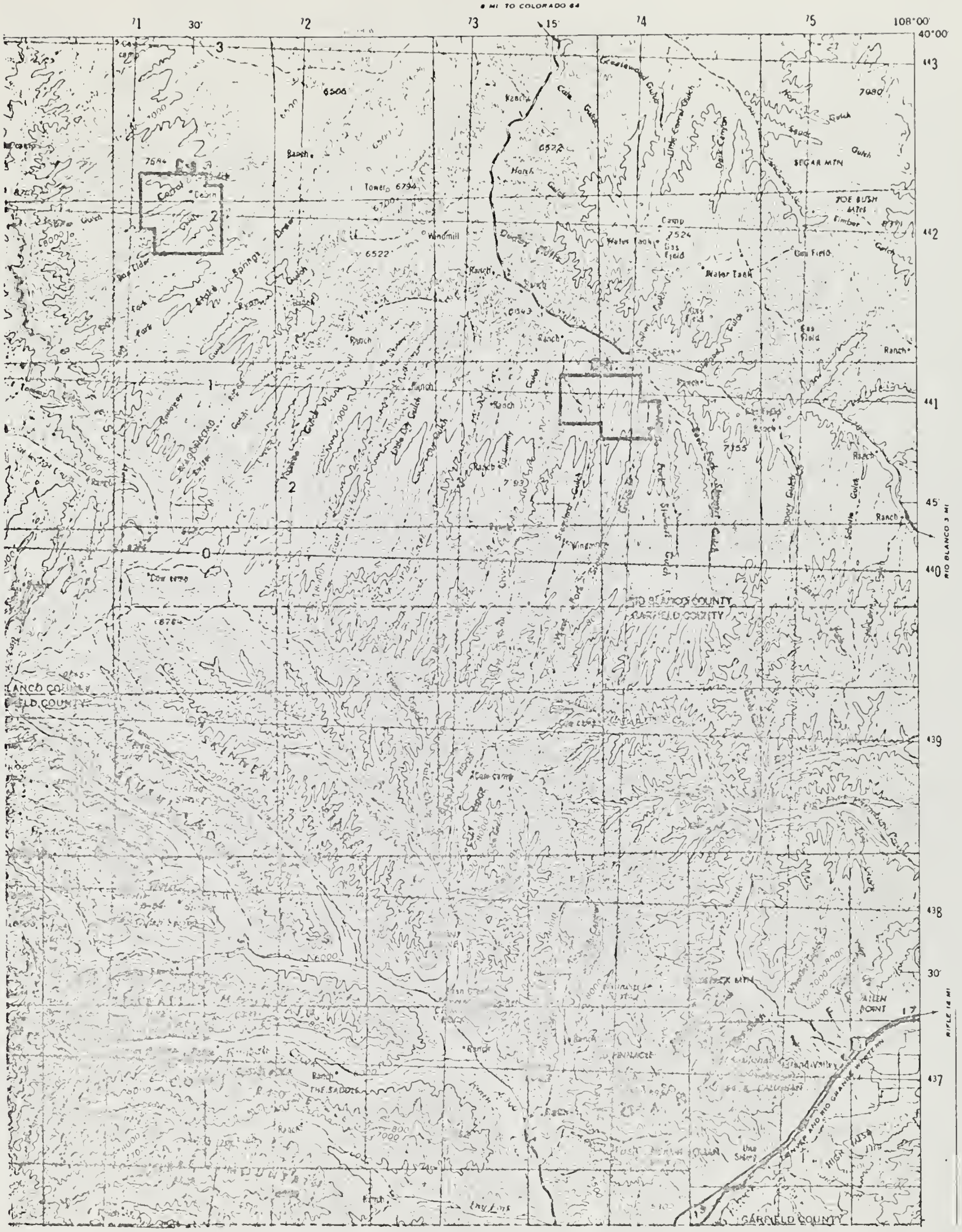

MI TO COLORADO 64
30'
15'
108°00'
40°00'
Cathedral
Cabin
Tower 6794
Windmill
Water Tank
Camp
Gas Field
SEGAR MTN
Ranch
RIO BLANCO COUNTY
GARFIELD COUNTY
RIO BLANCO 3 MI
RIFLE 14 MI
FALLEN POINT
THE SADDLE
PINNACLE
HIGH MESA
45'
30'
443
442
441
440
439
438
437

Figure 1

Topographic Map of the Area Surrounding Federal Oil Shale Tracts C-a and C-b

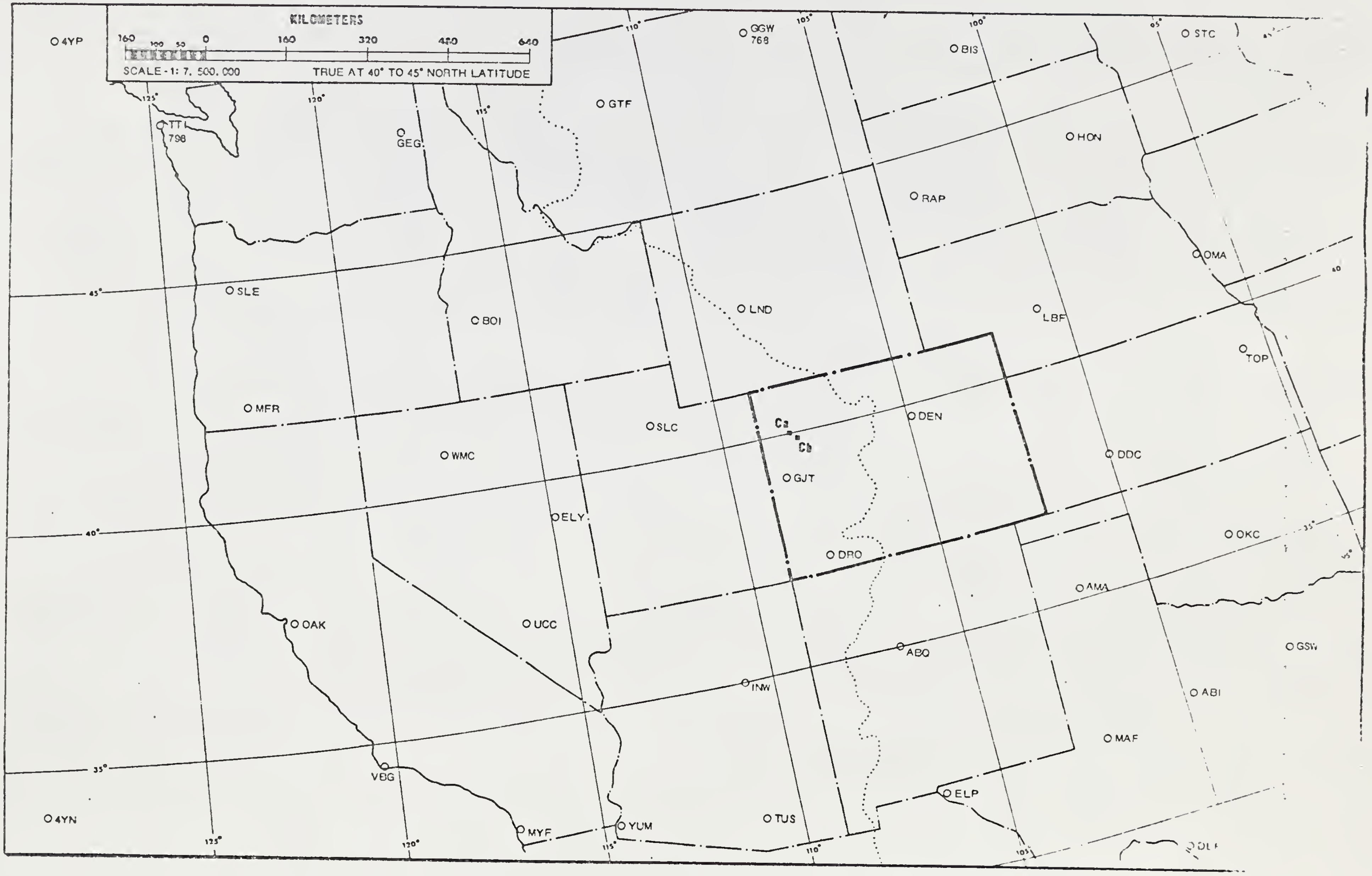

KILOMETERS
160
100
50
0
160
320
480
640
SCALE - 1: 7, 500, 000
TRUE AT 40° TO 45° NORTH LATITUDE
4YP
GGW
768
GTF
BIS
STC
HON
RAP
OMA
TTL
798
GEG
LND
LBF
TOP
SLE
BOI
DEN
SLC
MFR
WMC
Ca
Cb
GJT
DDC
ELY
DRO
OKC
AMA
OAK
UCC
ABQ
GSW
INW
ABI
MAF
VBG
ELP
4YN
MYF
YUM
TUS
DLF
125°
120°
115°
110°
105°
100°
95°
45°
40°
35°

Figure 2

Lake City upper level wind flows are closer to the upper air flow patterns over the oil shale tracts than those over Grand Junction, which is significantly closer to the tracts. In general, the upper level winds are predominantly from the west, although during the study period, the winds ranged from throughout all sectors.

The temperature structure above the tract followed the dry adiabatic lapse rate very well above about 1500 feet above the surface on clear days. On moist days, (with showers in the area) the temperature structure showed more of a wet adiabatic behavior. The lower 1500 feet above the surface exhibited a somewhat more complex profile with inversions in the morning hours which generally broke up by early afternoon or late morning. The temperature inversions were more pronounced in the valleys below the tract. The average mixing layer depth in the presence of an inversion at the early morning sounding (05:00 MST) was about 900 feet above the proposed plant site (7100 MSL) over C-a and about 750 feet above the proposed plant site (7000 MSL) over C-b. At the mid-morning sounding, under the influence of an inversion, the average mixing layer depth was about 700 feet over C-a and about 500 feet over C-b.

2.0 DATA ACQUISITION TECHNIQUES

2.1 TEMPERATURE PROFILES

The vertical temperature structures from the surface to 13,000 feet MSL were determined four times daily using a shielded sensitive thermistor mounted on a wing strut of a light aircraft which was flown out of Rifle, Colorado. The four flights were made at approximately 05:00, 08:00, 12:00 and 17:00 hours MST on days when the weather permitted safe flying. During daylight hours, soundings were made to within 100 feet of the surface; during night flights, 500 foot safety margins were observed. In addition, flights were made down nearby valleys to determine the temperature structure of the air actually below the proposed plant sites on the 08:00 and 12:00 hour soundings.

The instrument used for the temperature recordings was an EG&G portable temperature recorder Model 702 which is designed to achieve high-resolution temperature recording from a moving airplane or automobile. The unit is capable of measuring temperatures in the range from -30°C to +32°C with an absolute accuracy better than ± 0.2°C, although for this operation the unit was calibrated to within ± 0.1°C. The specifications of the Model 702 are given in Table 1.

TABLE 1

Specifications:

Sensor Probe:

Type	Thermistor head in weatherproof radiation shield
Range	-30°C to +32°C in six ranges
Accuracy	± 0.2°C absolute
Time Response	less than 2 seconds for 63% recovery in still air

Recorder:

Resolution	.1°C
Process	Meter & permanent, inkless on pressure sensitive paper
Chart Speed	60 inches per hour
Chart Paper	63 feet by 2 5/16 inch usable width
Power	Nickel-cadmium batteries, 10-hr operation

TABLE 2

Date	Conditions
10/1/74	Weather clear/Few high cirrus/500mb winds 20 knots-300degrees
10/2/74	Weather clear/Few high cirrus/500mb winds 20 knots-240degrees
10/3/74	Weather clear in morning/17:00 MST sounding cancelled/storm front causing high winds from Southwest and scattered showers
10/4/74	No soundings taken/Heavy showers/ceiling 8000ft/SW winds
10/5/74	No soundings/Scattered thundershowers/ground fog/West winds
10/6/74	No soundings/Widely scattered thundershowers/Low fog clearing by 09:00/500mb winds 20 knots-270degrees
10/7/74	Widely scattered thundershowers/500mb winds 10 knots-270 degrees
10/8/74	Weather clear/Few high cirrus/500mb winds 10 knots-270degrees
10/9/74	Scattered strata cumulus at 18-20,000 in morning developed to heavy thundershower activity in afternoon at 14,000/500mb winds 35 knots at 230 degrees
10/10/74	Widely scattered thundershowers/500mb winds 20 knots-250degrees
10/11/74	Early morning ground fog, breaking up at about 09:00 MST. Moderate afternoon thundershower activity/ceiling 10-12,000/ 17:00 MST sounding cancelled due to heavy thunderstorm activity in the area
10/12/74	No soundings taken/Heavy showers/ceiling 8000 ft
10/13/74	Heavily overcast with ground fog in morning breaking up about 10:00 MST/Scattered thundershowers in the afternoon
10/14/74	Weather clear/Few high cirrus/500mb winds 35 knots-350degrees
10/15/74	Weather clear/Few high cirrus/500mb winds 35 knots-000degrees

As the plane spiraled down or climbed to 13,000 feet in an approximately 1 km diameter helix at approximately 400 ft/minute , altitude markings were recorded on the temperature chart by an observer. While the pilot attempted to maintain a constant rate of descent or ascent, this was not always possible due to turbulence. For this reason, temperature/altitude readings were taken from the charts only at points marked with a distinct altitude. No interpolations between markings were used.

2.2 WINDS ALOFT

The vertical wind structures from the surface to 13,000 feet MSL or cloud base were determined four times daily using 30 gram pilot balloons in conjunction with theodolites. The theodolites were aligned to magnetic north and then corrected to true north by rotating them 15° counterclockwise. The balloons were carefully "weighed off" using a standard National Weather Service inflation kit for 30 gram balloons inside an enclosed area within several hundred feet of the respective sites' main meteorological towers to rule out any influence which wind might cause. These balloons rise at an approximately constant rate of 600 feet/minute. During the night, small water activated batteries connected to a tungsten filament bulb were attached to the balloon before it was weighed off to allow optical tracking.

The balloons were released at about 05:00, 08:00, 12:00 and 17:00 hours MST on days in which temperature soundings were made. At 30-second intervals, azimuth and elevation were vocally recorded to within 0.1 degree. The balloons were kept in the field of view at all times and only after the sounding was completed were the voice records transcribed to data sheets.

3.0 DATA PRESENTATION

During the course of the 15-day study period, soundings over the two oil shale tracts were aborted on four entire days due to inclement weather causing dangerous flying conditions. A general description of the weather conditions for the 15-day period is given in Table 2.

The release times of the pilot balloons (pibals) and the temperature sounding times for the oil shale tracts along with the height attained by the balloons and the ground temperature are presented in Table 3.

The topography of both of the Federal Oil Shale Tracts, C-a and C-b is complex. Both tracts consist of several finger-like plateaus sloping generally down to the Northeast. Between plateau-like regions are broad steep-sided valleys. The elevation differences between plateau-like regions and valleys are about 300 to 400 feet, both having the same general slope. Tract C-a slopes to the Northeast while Tract C-b slopes to the North-Northeast. The proposed elevation of the plant site at Tract C-a is approximately 7100 feet. The proposed elevation of the plant site at Tract C-b is approximately 7000 feet.

3.1 VERTICAL TEMPERATURE PROFILES

The vertical temperature structures of the air over Salt Lake City, Utah, Denver, Colorado, and Grand Junction, Colorado during the period from 1 October to 15 October, 1974 are plotted on Pseudo-Adiabatic charts in Appendix A. Each chart has the two normal soundings of the day plotted. The heavy solid line is the 24:00 hour GMT temperature sounding; the light solid line is the 12:00 GMT temperature sounding. The broken curves plot the dew point depression temperature profiles corresponding to the air temperature curves. Salt Lake City is abbreviated SLC; Denver is abbreviated DEN, and Grand Junction is abbreviated GJT.

One noteworthy similarity in the NWS soundings is the presence of the surface based inversion in the 12:00 GMT soundings in virtually every plot. Only Denver had no surface based inversion present in the early morning hours during this study period. Without exception Salt Lake City and Grand Junction were under the influence of a morning inversion between 1 October and 15 October 1974. Denver did not have an inversion present

TRACT C-a

DATE	FLIGHT NUMBER	TIME OF PIBAL RELEASE	TIME OF TEMPERATURE SOUNDING	PIBAL HEIGHT	GROUND TEMPERATURE
10/1/74	1	04:45	04:37	3000	7.2
	2	07:02	07:42	6000	4.4
	3	11:00	11:29	3900	20.0
	4	16:00	16:20	5400	23.3
10/2/74	1	04:02	04:31	6000	7.8
	2	07:00	07:58	6000	7.2
	3	11:00	11:49	6000	23.9
	4	16:00	16:48	6000	24.4
10/3/74	1	04:04	04:45	6000	10.0
	2	07:00	07:40	5700	8.9
	3	11:00	12:00	6000	20.6
	4				
10/4/74	1				
	2				
	3				
	4				
10/5/74	1	05:00		NP	3.3
	2		06:08		
	3				
	4				
10/6/74	1				
	2				
	3				
	4				
10/7/74	1	05:15	05:45	4500	-.6
	2	08:00	08:38	9000	3.3
	3	12:00	12:25	8700	20.0
	4	17:00	17:30	9000	
10/8/74	1		05:45		
	2	08:00	08:40	7200	
	3	12:00	12:36	7200	
	4	17:00	17:55	6900	
10/9/74	1	05:00	05:59	7200	8.3
	2	08:00	08:29	7200	11.1
	3	12:00	12:24	5100	19.4
	4	17:00	17:23	7200	
10/10/74	1	05:00	05:24	5700	5.0
	2	08:00	08:25	4800	6.7
	3	12:00	12:24	6300	17.8
	4	17:00	17:26	5700	17.2
10/11/74	1	05:00	05:39	4200	3.9
	2	08:00	08:28	600	4.4
	3	12:10		7200	11.1
	4				
10/12/74	1				
	2				
	3				
	4				
10/13/74	1				
	2				
	3	12:17	12:30	9000	
	4	17:00	17:31	9300	11.1
10/14/74	1	05:00	05:48	6600	0.0
	2	08:00	08:28	6900	-0.6
	3	12:00	12:40	8700	12.8
	4	17:00	17:35	9000	13.3
10/15/74	1		05:50		
	2	08:05	08:30	9000	15.6
	3	12:00	12:30	9000	16.7
	4		17:41		

TRACT C-b

DATE	FLIGHT NUMBER	TIME OF PIBAL RELEASE	TIME OF TEMPERATURE SOUNDING	PIBAL HEIGHT	GROUND TEMPERATURE
10/1/74	1	04:01	04:06	5100	11.1
	2	07:00	07:13	3900	
	3	11:00	11:03	6000	20.6
	4	16:00	15:55	6000	20.8
10/2/74	1	04:45	04:07	6000	10.6
	2	07:00	07:13	6000	11.7
	3	11:00	11:17	6000	19.6
	4	16:00	16:00	6300	
10/3/74	1	04:00	04:10	6000	11.7
	2	07:00	07:15	6000	13.9
	3	11:00	10:50	6000	
	4				
10/4/74	1				
	2				
	3				
	4				
10/5/74	1				
	2				
	3				
	4				
10/6/74	1				
	2				
	3				
	4				
10/7/74	1	05:00	05:15	8700	
	2	08:00	08:13	9000	
	3	12:00	12:13	9000	
	4	17:00	17:17	9000	
10/8/74	1	05:15	05:20	6600	
	2	08:00	08:13	9000	
	3	12:00	12:13	9000	
	4	17:00	17:17	9000	
10/9/74	1	05:15	05:36	8400	11.1
	2	08:00	08:07	8100	11.1
	3	12:00	12:08	7200	16.1
	4	17:00	17:02	7500	16.1
10/10/74	1	05:15	04:57	9000	4.4
	2	08:00	07:59	7500	6.1
	3	12:00	11:58	6900	19.4
	4	17:00	17:01	7800	
10/11/74	1	05:14	05:17	4800	5.0
	2	08:05	08:06	6600	
	3	12:20		2100	10.0
	4				
10/12/74	1				
	2				
	3	12:14		1200	7.8
	4				
10/13/74	1				
	2				
	3	12:16	12:04	5700	17.2
	4	17:00	17:05	7200	13.3
10/14/74	1	05:00	05:18	4200	
	2	08:05	08:07	4200	7.2
	3	12:00	12:04	2000	11.7
	4	17:00	17:11	5100	12.2
10/15/74	1	05:08	05:28	7200	2.2
	2	08:00	08:11	7200	
	3	12:00	12:07	5700	14.4
	4	17:00	17:14	7200	

on only five days and these days were all associated with the presence of thundershowers. Although few were severe and none persisted throughout the day, morning inversions at these three locations were the rule rather than the exception throughout the study period.

The vertical temperature profiles over Federal Oil Shale Tracts C-a and C-b for each individual sounding are given in Appendix B. The profiles from each tract are plotted alongside each other to allow quick visual (qualitative) comparison. In addition, when a NWS sounding at Grand Junction, Colorado was made at approximately the same time, its temperature structure in the height interval shown was plotted. The straight solid lines in each diagram are the approximate dry adiabatic lapse rate and wet (pseudo) adiabatic lapse rate.

Because the 05:00 MST sounding was made at night, the temperature profiles were not obtained closer than about 500 feet to the surface. In this case, a single line was drawn from the surface observation of temperature to the lowest point to which the aircraft was able to safely descend. Although the temperature fine structure is not evident, the slope of the line gives a lower bound on the maximum lapse rate in the unprofiled height interval.

On the 08:00 and 12:00 MST flights, the temperature profile was extended by flying down nearby valleys to altitudes as much as 700 feet below the plateau level (both tracts have proposed plant sites on the plateau-like regions). This procedure revealed the fact that in most cases, the inversion intensity below the plateau levels was much more severe than at the proposed plant altitudes. An excellent example of this type of behavior is shown in the temperature profiles taken at about 08:00 MST on 8 October 1974 (see Figure B-17).

A quantitative comparison of the lapse rate at an altitude of 1000 feet above the surface between the NWS stations and the oil shale tracts is given in Table 4. For the oil shale tracts, the "surface" was

TABLE 4

TEMPERATURE LAPSE RATE AT 1000 FEET ABOVE THE SURFACE CATEGORIZED ACCORDING TO THE PASQUILL-GIFFORD STABILITY SCHEME

NOTE: Numbers in parentheses give the lapse rate in °C per 100 meters

Date	Flight Number	SLC	DEN	GJT	C-a	C-b
10/1/74	1				E(+.05)	D(-.5)
	2	E(+.66)	E(+.03)	E(+.41)	msg	E(-.43)
	3				D(-.95)	D(-.98)
	4	D(-.88)	D(-.93)	D(-.85)	D(-.96)	D(-1.1)
10/2/74	1				E(-.25)	E(-.29)
	2	E(+.49)	F(+2.07)	E(-.04)	D(-.66)	E(-.28)
	3				D(-.9)	D(-.94)
	4	D(-1.05)	D(-.85)	D(-.86)	D(-.9)	D(-.94)
10/3/74	1				E(+.37)	E(+.07)
	2	E(-.1)	E(-.05)	E(+.31)	D(-.47)	D(-.46)
	3					
	4	E(-.45)	D(-1.0)	E(-.37)		
10/4/74	1					
	2	E(-.37)	D(-.71)	E(+.02)		
	3					
	4	D(-.91)	D(-1.03)	D(-1.08)		
10/5/74	1					
	2	D(-.5)	E(+.32)	E(+.79)		F(3.37)
	3					
	4	D(-1.04)	D(-1.01)	D(-.94)		
10/6/74	1					
	2	E(-.33)	E(-.31)	D(-.75)		
	3					
	4	D(-.94)	msg	D(-.82)		
10/7/74	1				D(-.63)	D(-.54)
	2	E(+.08)	E(+1.4)	E(+.49)	E(-.32)	D(-.71)
	3				D(-1.02)	D(-.93)
	4	D(-.74)	D(-.9)	D(-.96)	D(-1.1)	D(-1.07)
10/8/74	1				D(-.62)	E(+.03)
	2	msg	E(+.49)	E(+.30)	E(-.26)	E(-.28)
	3				D(-1.07)	D(-.9)
	4	D(-.7)	D(-.95)	D(-1.03)		
10/9/74	1				E(-.41)	E(.79)
	2	D(-.62)	E(+.64)	E(+.25)	D(-.62)	D(-.56)
	3				D(-.92)	D(-.98)
	4	D(-1.07)	D(-.99)	D(-.97)	D(-1.15)	D(-1.03)
10/10/74	1				E(-.29)	E(-.34)
	2	E(+.05)	E(-.36)	E(+.56)	E(-.26)	D(-1.18)
	3				D(-.9)	D(-1.26)
	4	D(-.95)	D(-.90)	D(-1.02)	D(-.78)	D(-.66)
10/11/74	1				D(-.79)	E(-.14)
	2	E(+.17)	E(-.22)	E(-.49)	E(-.34)	E(-.34)
	3					
	4	D(-1.29)	D(-.97)	D(-.68)		
10/12/74	1					
	2	E(+.35)	E(-.4)	E(-.33)		
	3					
	4	D(-1.08)	D(-1.18)	D(-.82)		
10/13/74	1					
	2	E(+.54)	E(+.81)	E(-.12)		
	3				D(-.99)	D(-.91)
	4	D(-.98)	D(-1.09)	D(-.97)	D(-1.13)	D(-1.2)
10/14/74	1				E(+.11)	E(0.0)
	2	E(+.33)	E(-.47)	E(+.25)	E(+.45)	E(+.25)
	3				D(-.85)	D(-.84)
	4	D(-.77)	D(-1.04)	D(-.97)	D(-.87)	D(-.87)
10/15/74	1				E(-.34)	D(-.6)
	2	E(+.04)	F(+1.72)	E(+.20)	E(-.44)	E(-.04)
	3				D(-1.05)	D(-.93)
	4	D(-.70)	D(-.84)	D(-.82)	D(-1.05)	D(-1.05)

taken as the proposed plant sites on the plateau-like regions. The lapse rates were categorized according to the following scheme:

Stability Index	Temperature Difference (°C) over 100 meters
A	$T < -1.9$
B	$-1.9 \leqslant T < -1.7$
C	$-1.7 \leqslant T < -1.5$
D	$-1.5 \leqslant T < -.5$
E	$-.5 \leqslant T < 1.5$
F	$1.5 \leqslant T$

As would be expected, the lapse rates begin in the early morning as slightly stable or stable and almost invariably by late morning and afternoon turn to neutral categories. In general, at this altitude, there is good agreement between oil shale tracts and NWS stations.

3.2 UPPER AIR WIND STRUCTURE

The vertical wind structure over Salt Lake City, Denver and Grand Junction during the 1 October to 15 October 1974 study period is plotted on the Pseudo-Adiabatic Charts in Appendix A. As for the temperature profiles, each chart has the two normal soundings of the day plotted. The heavy flags are the results of the 24:00 GMT sounding and the light flags are the results of the 12:00 GMT soundings.

A comparison of the detailed pibal trajectories in polar form at the oil shale tracts C-a and C-b for each sounding is given in Appendix C. The plotted points in the hodographs are the projected balloon positions corresponding to each individual sighting. The numbers beside the points give the computed altitude of the balloons in hundreds of feet for that particular sighting. A brief review of all of the comparisons shows that in some cases there is excellent agreement between the two sites and in some others there absolutely is none. In general there are more cases where there is some agreement between sites than where there is none; however, there is no apparent pattern for agreement with the limited data available. A check of the temperature profile comparisons reveals that there is no ready agreement between inter-site wind comparisons when temperature correlations are good.

A quantitative comparison between winds at a particular level for the three NWS stations and the two oil shale tracts also reveals very little good correlation; although here again, there are some cases where there is excellent agreement. Wind speed and direction comparisons at 8000 feet above MSL and 9000 feet above MSL are shown in Tables 5 and 6, respectively.

TABLE 5

WIND SPEED AND DIRECTION 8000 FT ABOVE MSL

Date	Hour	SLC		DEN		GJT		C-a		C-b	
		WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
10/1/74	06	5	300	5	265	2	240	1.7	055	calm	calm
	18	10	310	10	100	5	295	8.3	235	3.7	335
10/2/74	06	10	205	10	290	3	205	11.7	260	6.4	205
	18	15	210	5	085	10	280	13.0	220	8.5	225
10/3/74	06	10	200	15	280	9	200	7.6	210	20.6	225
	18	10	320	15	125	29	190	msg	msg	msg	msg
10/4/74	06	10	300	25	285	15	245	msg	msg	msg	msg
	18	5	230	15	065	10	300	msg	msg	msg	msg
10/5/74	06	10	265	20	155	15	275	msg	msg	msg	msg
	18	10	275	5	005	10	220	msg	msg	msg	msg
10/6/74	06	5	060	5	175	10	130	msg	msg	msg	msg
	18	2	255	msg	msg	10	055	msg	msg	msg	msg
10/7/74	06	2	130	15	300	calm	calm	1.4	355	1.3	215
	18	2	300	2	060	7	300	7.2	000	6.1	345
10/8/74	06	msg	msg	5	350	2	010	4.8	135	2.6	135
	18	10	190	5	070	4	355	5.6	345	14.4	330
10/9/74	06	25	150	15	200	8	205	12.8	205	10.6	215
	18	10	175	10	075	9	305	9.8	215	24.4	225
10/10/74	06	5	340	5	290	10	235	3.6	190	4.9	185
	18	10	310	5	105	4	270	5.9	240	9.9	240
10/11/74	06	5	025	10	020	5	170	5.9	000	msg	msg
	18	10	015	10	000	25	170	msg	msg	msg	msg
10/12/74	06	10	060	10	055	10	080	msg	msg	msg	msg
	18	10	040	5	185	5	075	msg	msg	msg	msg
10/13/74	06	10	310	335	335	5	070	msg	msg	msg	msg
	18	10	335	010	010	4	310	3.4	315	7.8	335
10/14/74	06	10	335	020	020	12	025	5.2	025	1.7	015
	18	10	295	355	355	9	020		335	3.7	325

TABLE 6

WIND SPEED AND DIRECTION 9000 FT ABOVE MSL

		SLC		DEN		GJT		C-a		C-b	
Date	Hour	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
10/1/74	06	10	280	10	270	9	275	2.6	90	3.2	330
	18	10	325	5	095	5	310	13.8	260	6.8	310
10/2/74	06	5	210	5	285	5	265	13.0	265	10.8	255
	18	15	215	2	010	12	270	18.7	215	8.6	215
10/3/74	06	15	205	10	270	13	230	13.5	225	20.3	240
	18	10	295	15	135	35	190	msg	msg	msg	msg
10/4/74	06	5	305	30	285	20	245	msg	msg	msg	msg
	18	5	250	15	075	10	270	msg	msg	msg	msg
10/5/74	06	10	280	20	180	25	235	msg	msg	msg	msg
	18	10	275	10	325	20	265	msg	msg	msg	msg
10/6/74	06	5	175	10	185	10	170	msg	msg	msg	msg
	18	5	205	msg	msg	5	345	msg	msg	msg	msg
10/7/74	06	5	205	15	300	8	270	5.1	235	calm	calm
	18	5	235	2	360	10	300	4.7	305	9.5	355
10/8/74	06	msg	msg	5	020	3	330	2.8	40	1.7	220
	18	10	185	5	075	4	325	6.3	325	3.3	290
10/9/74	06	30	170	15	200	12	225	25.8	215	25.1	215
	18	15	180	10	090	8	285	16.7	225	31.6	225
10/10/74	06	5	275	10	260	12	225	8.4	210	10.9	205
	18	10	290	5	180	9	250	6.7	225	9.1	250
10/11/74	06	5	015	10	025	9	210	5.7	310	msg	msg
	18	10	050	10	015	25	165	msg	msg	msg	msg
10/12/74	06	10	050	10	070	5	150	msg	msg	msg	msg
	18	10	065	5	195	5	070	msg	msg	msg	msg
10/13/74	06	10	325	10	350	5	060	msg	msg	msg	msg
	18	10	345	10	005	5	015	1.9	145	5.4	315
10/14/74	06	10	325	15	020	17	015	7.0	020	14.5	035
	18	10	280	10	000	10	030	5.2	025	9.2	340
10/15/74	06	10	315	10	325	3	040	3.8	290	3.5	010
	18	10	325	10	300	5	335	7.3	265	msg	msg

APPENDIX A

PSEUDO-ADIABATIC DIAGRAMS

for

Salt Lake City, Utah

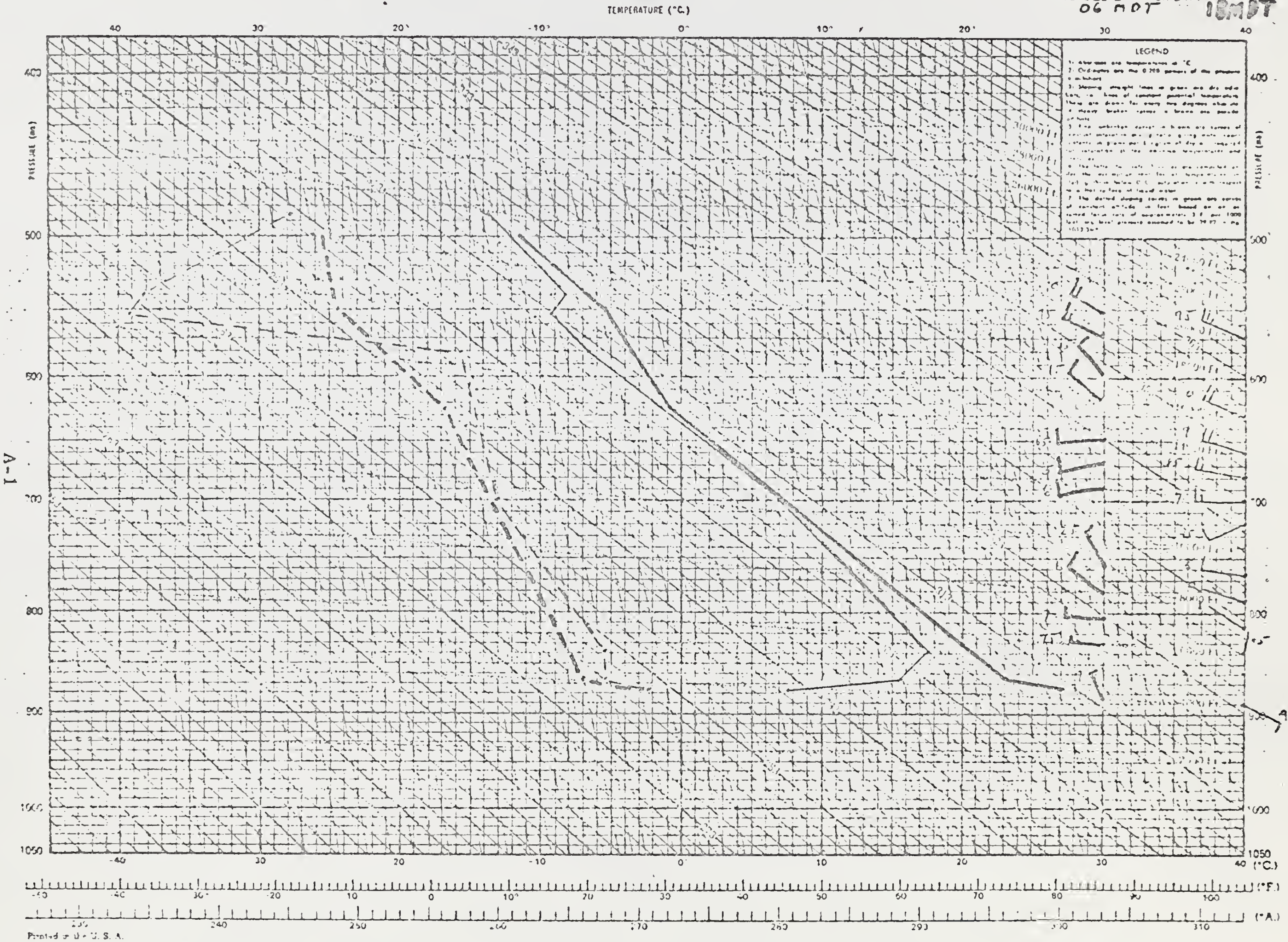
Denver, Colorado

Grand Junction, Colorado

over the period 1 October through 15 October, 1974

AIR TRANSPORT ASSOCIATION OF AMERICA
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 1, 1974
STATION SLC SLC
HOUR ___ ___TH MERIDIAN T.
06 MDT 18MDT



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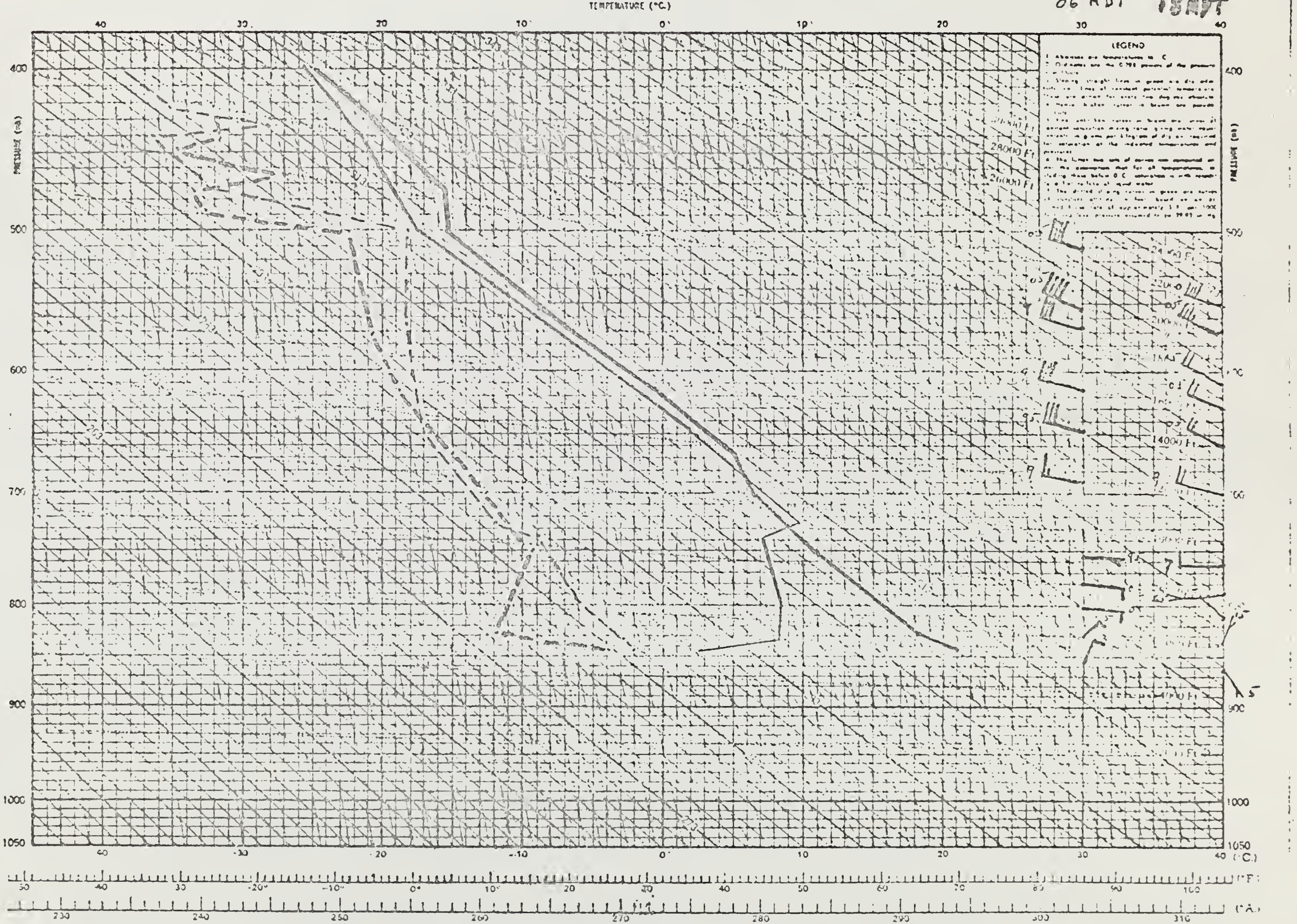
A-1

AIR TRANSPORT ASSOCIATION OF AMERICA
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 1, 1974
STATION DEN DEN
HOUR TH MERIDIAN 06 MDT 18MDT



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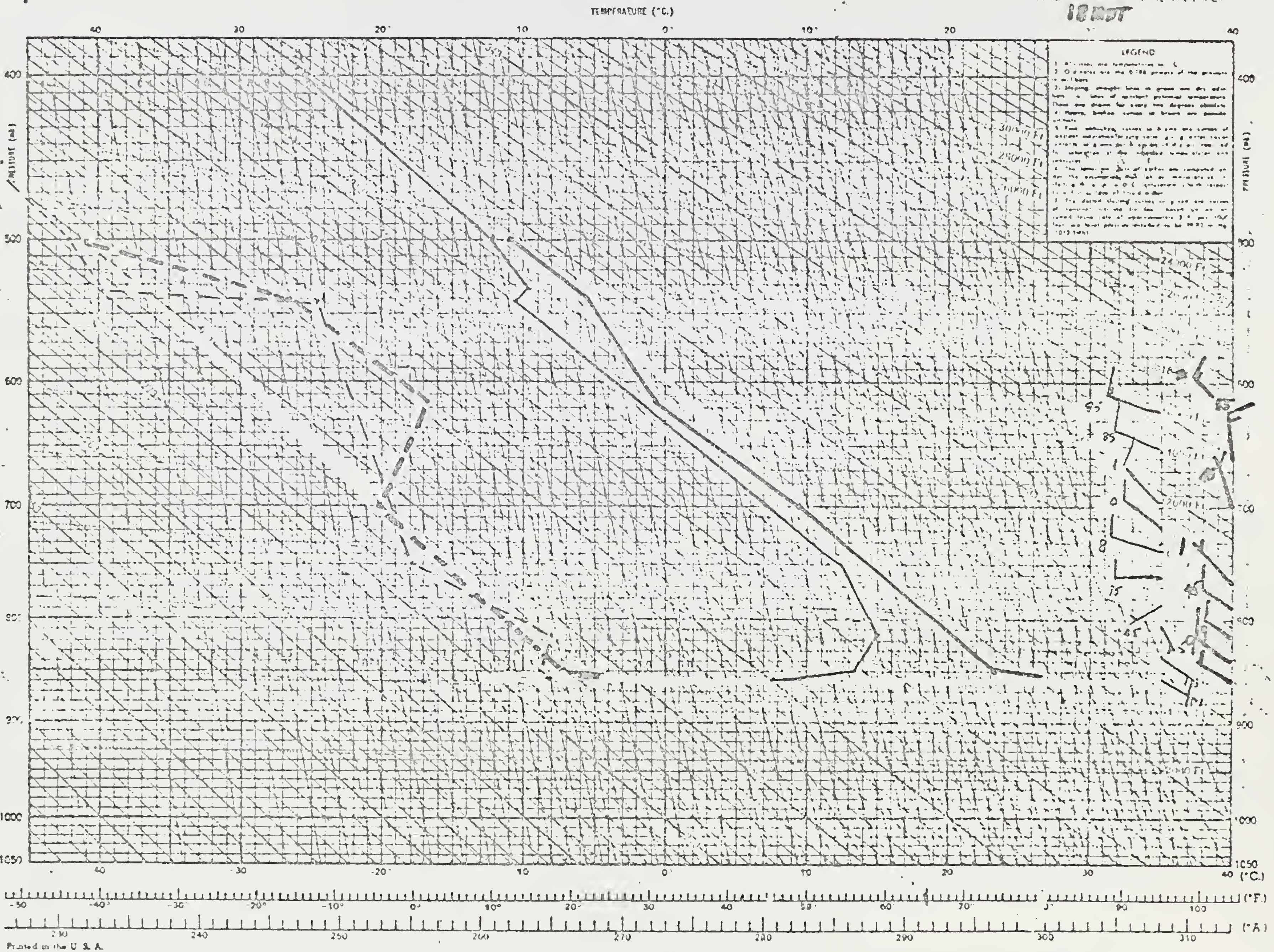
AIR TRANSPORT A[illegible]IATION OF AMERICA
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE __OCT 4, 1974
STA[illegible]: GJT
HOU[illegible] 06 MDT [illegible]ERIDIAN TIME[illegible]
18 MDT



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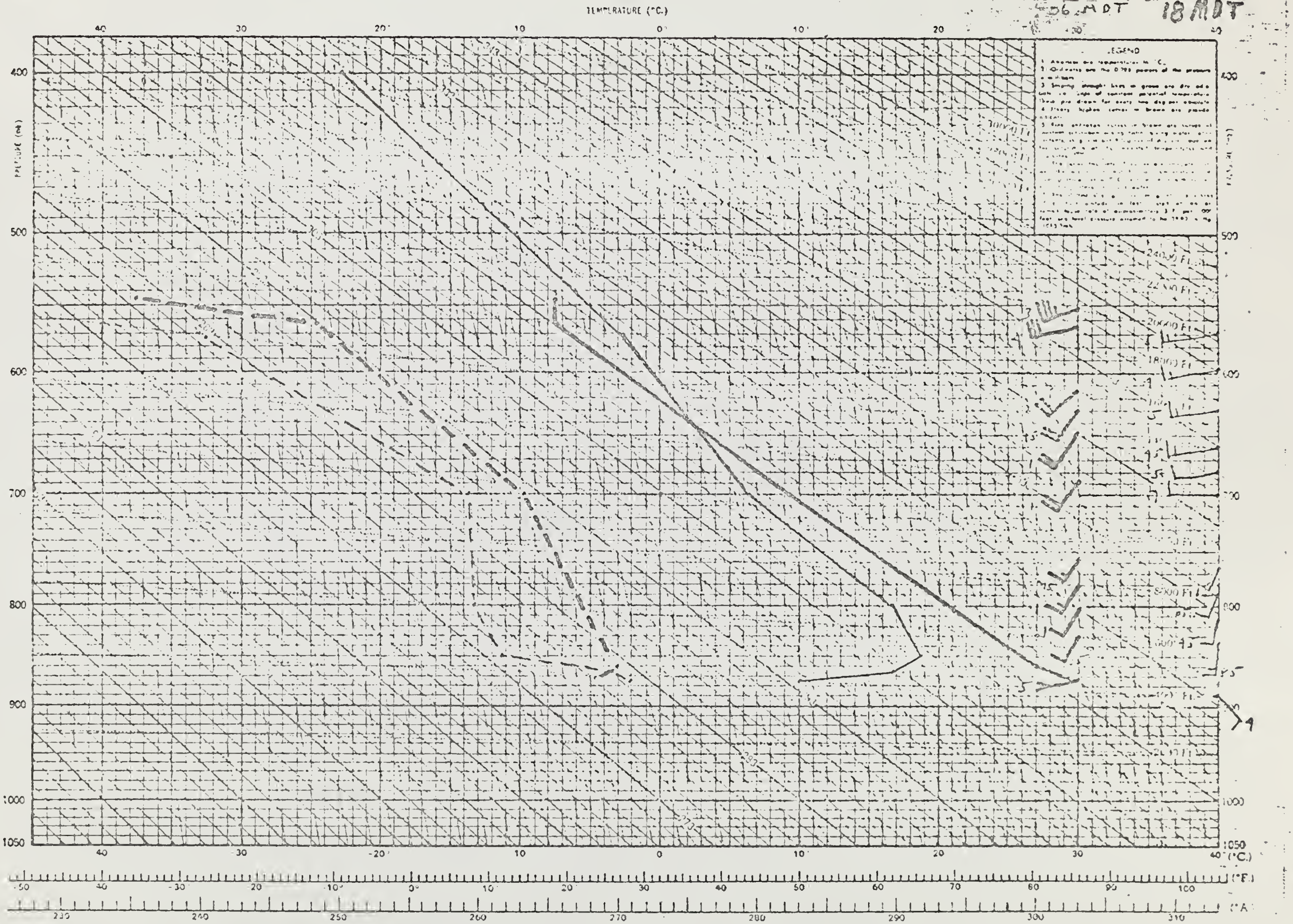
AIR TRANSPORT A CIATION OF AMERICA
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 2, 1979

STATION SLC SLC

HOUR 06 MDT 18 MDT



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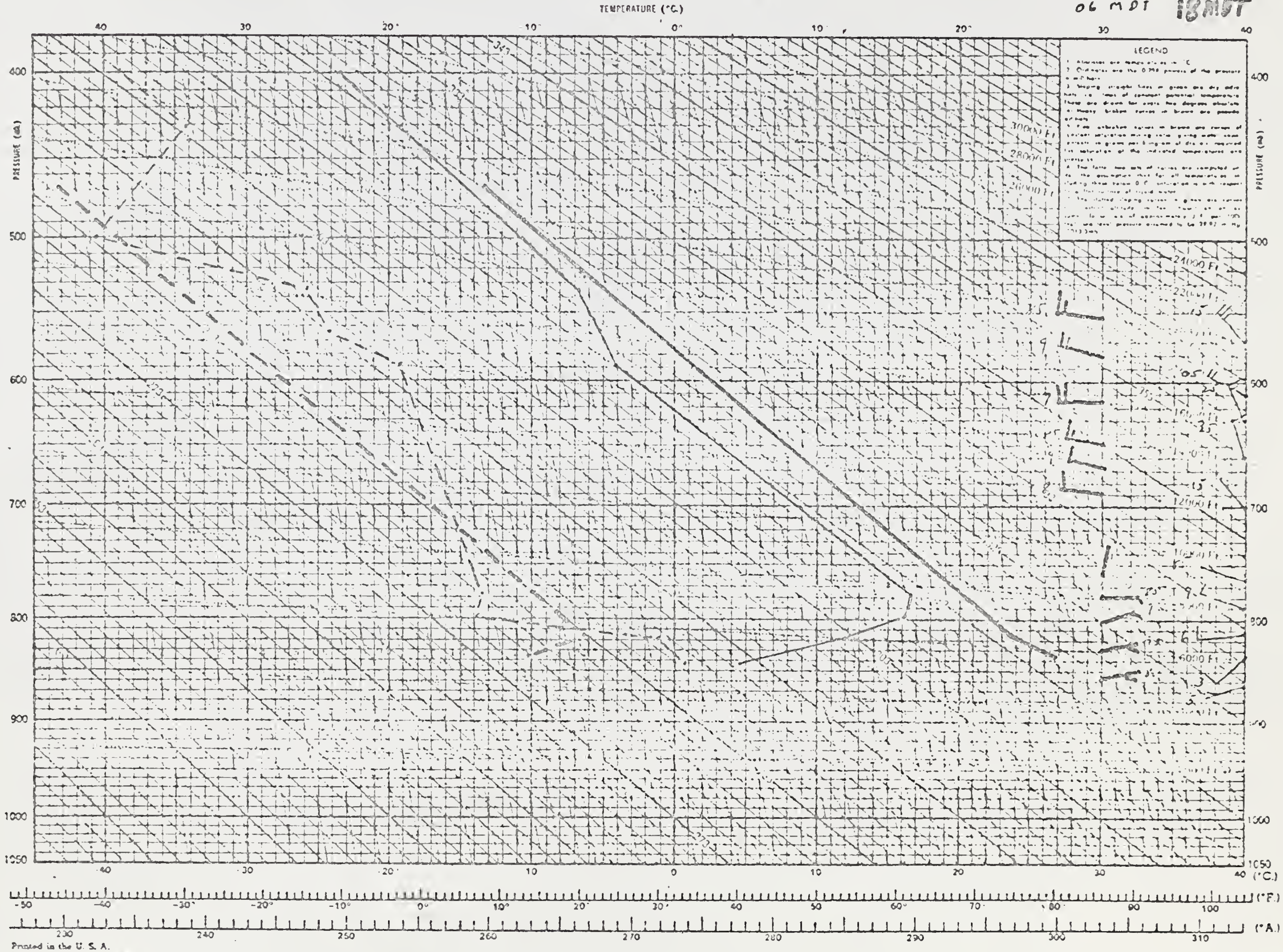
Air Transport A ciation of America
Meteorological Committee Chart III
Pseudo-Adiabatic Diagram

Date Oc T 2, 1974
Station DEN DEN
Hour th Meri 06 MDT 18MDT



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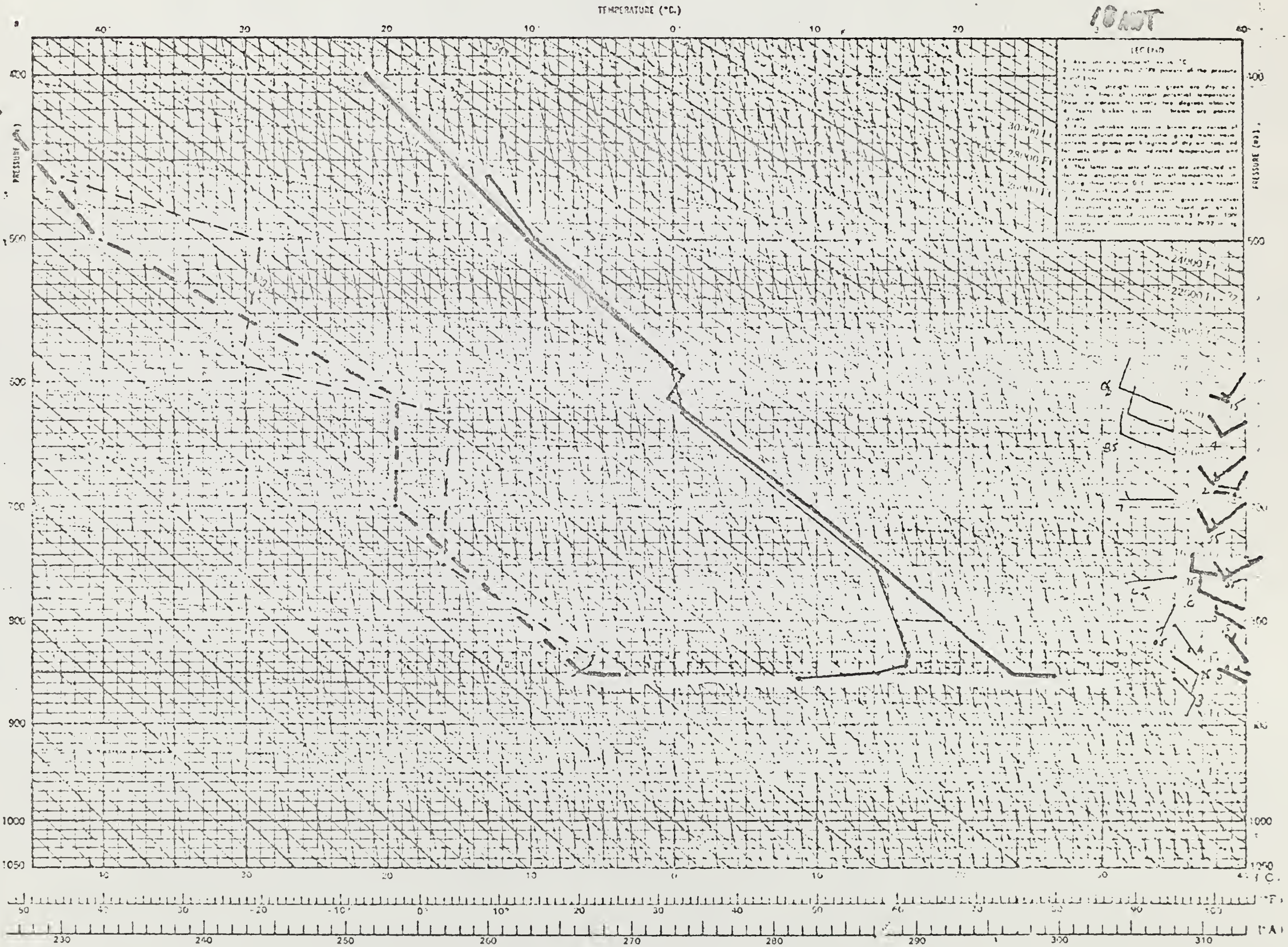
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct-2, 1974
STATION GJT
HOUR 06MDT (MERIDIAN TIME)
10ADT



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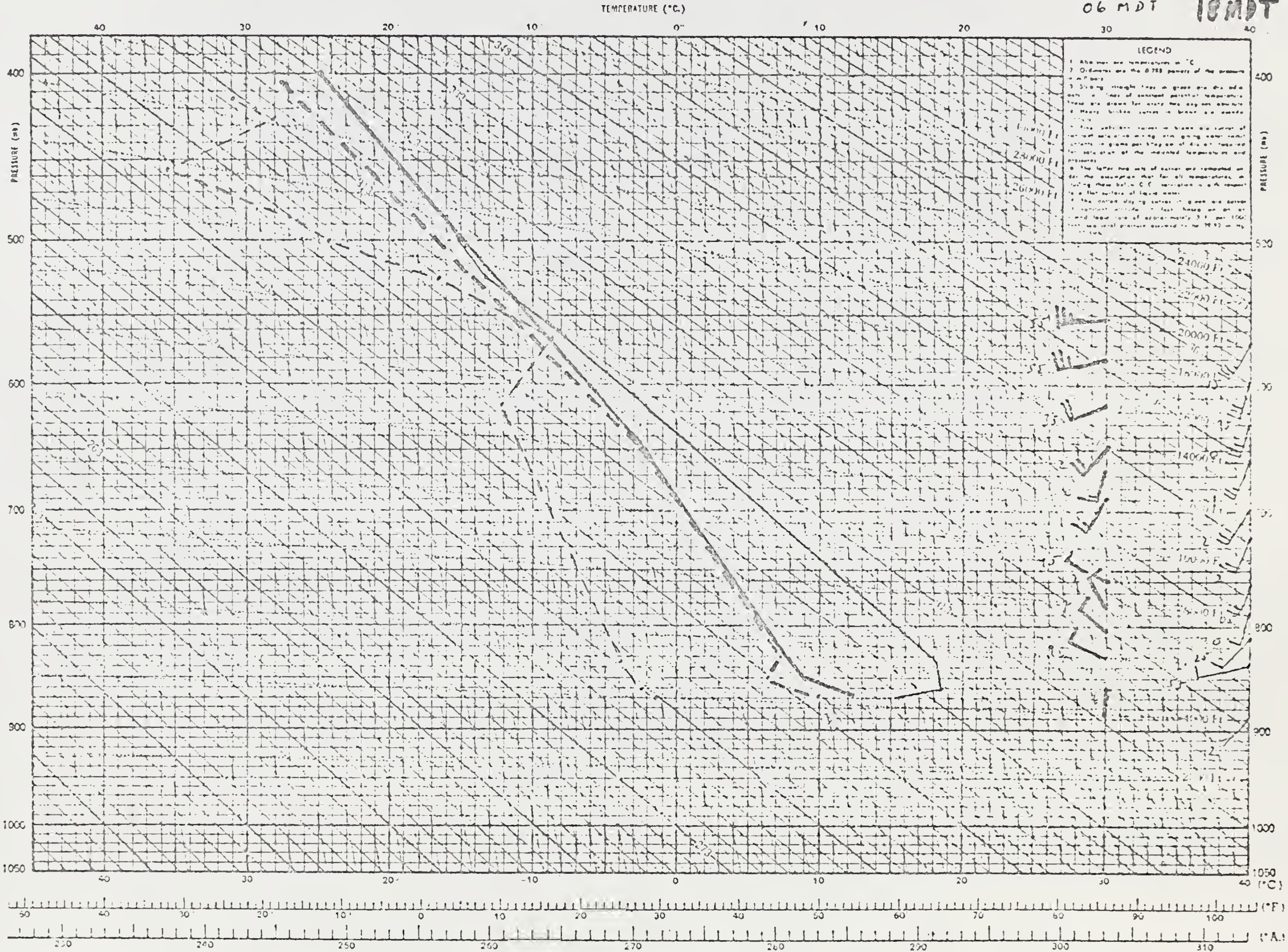
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 3, 1974
STATION SLC SLC
HOUR ___ TH MERIDIAN T___ 06 MDT 18MDT



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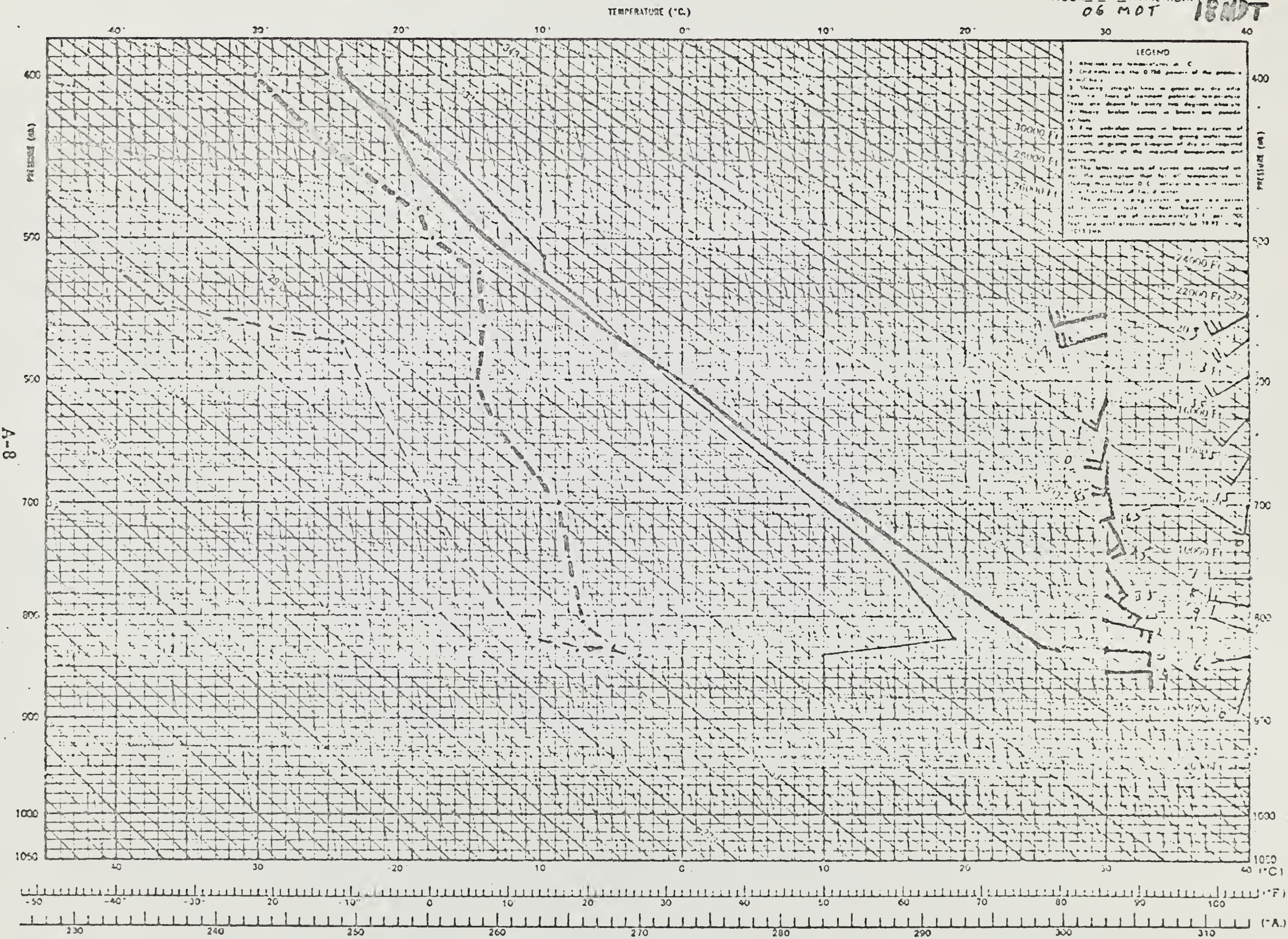
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 3 1974
STATION DEN DEN
HOUR _ _TH MERIDIAN 06 MDT 18MDT



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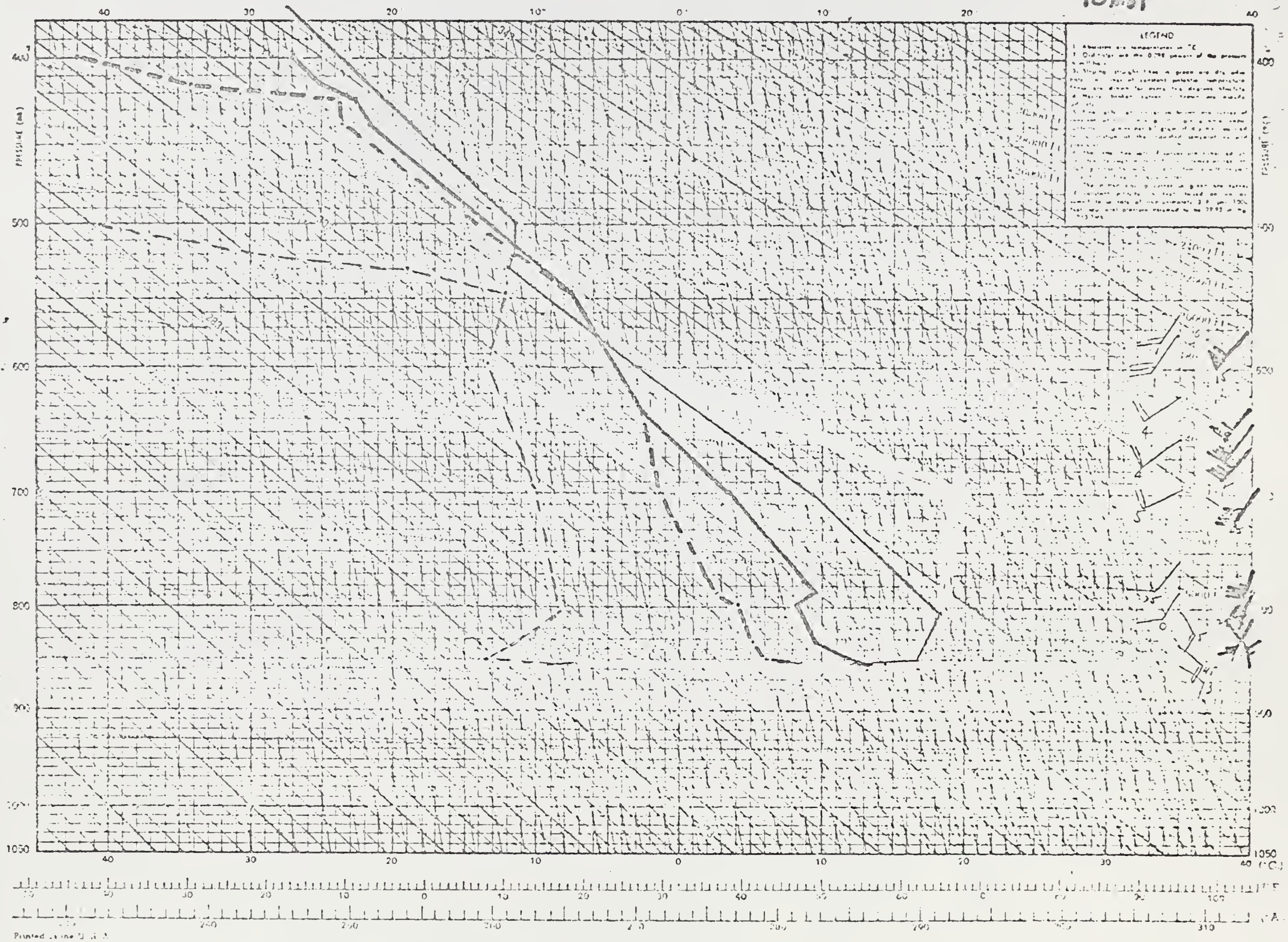
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 3, 1974
STATION GJT
HOUR 06 MDT [illegible] TIME
18 MDT



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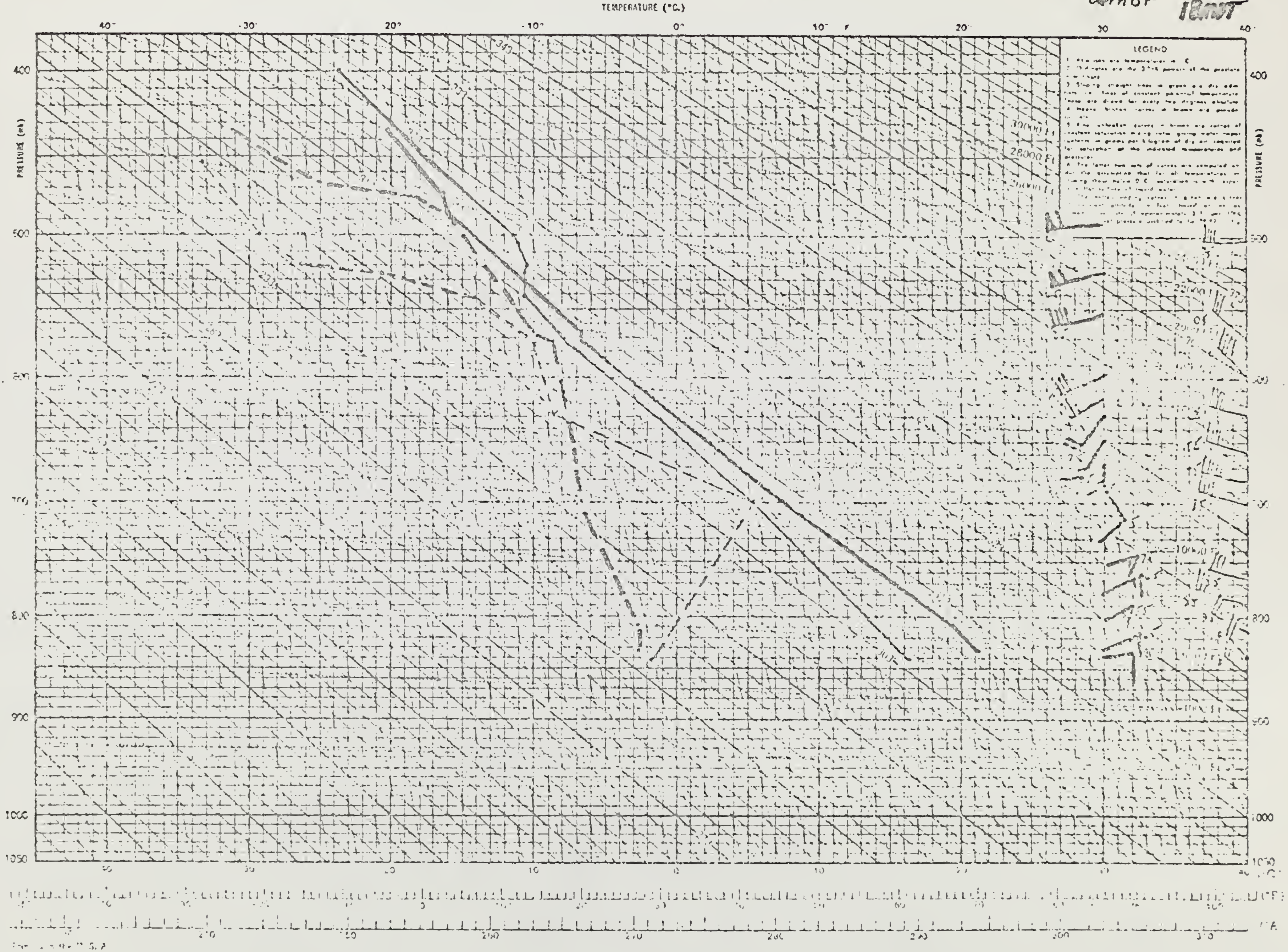
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 9, 1979
STATION DEN DEN
HOUR 05MDT 18GMT



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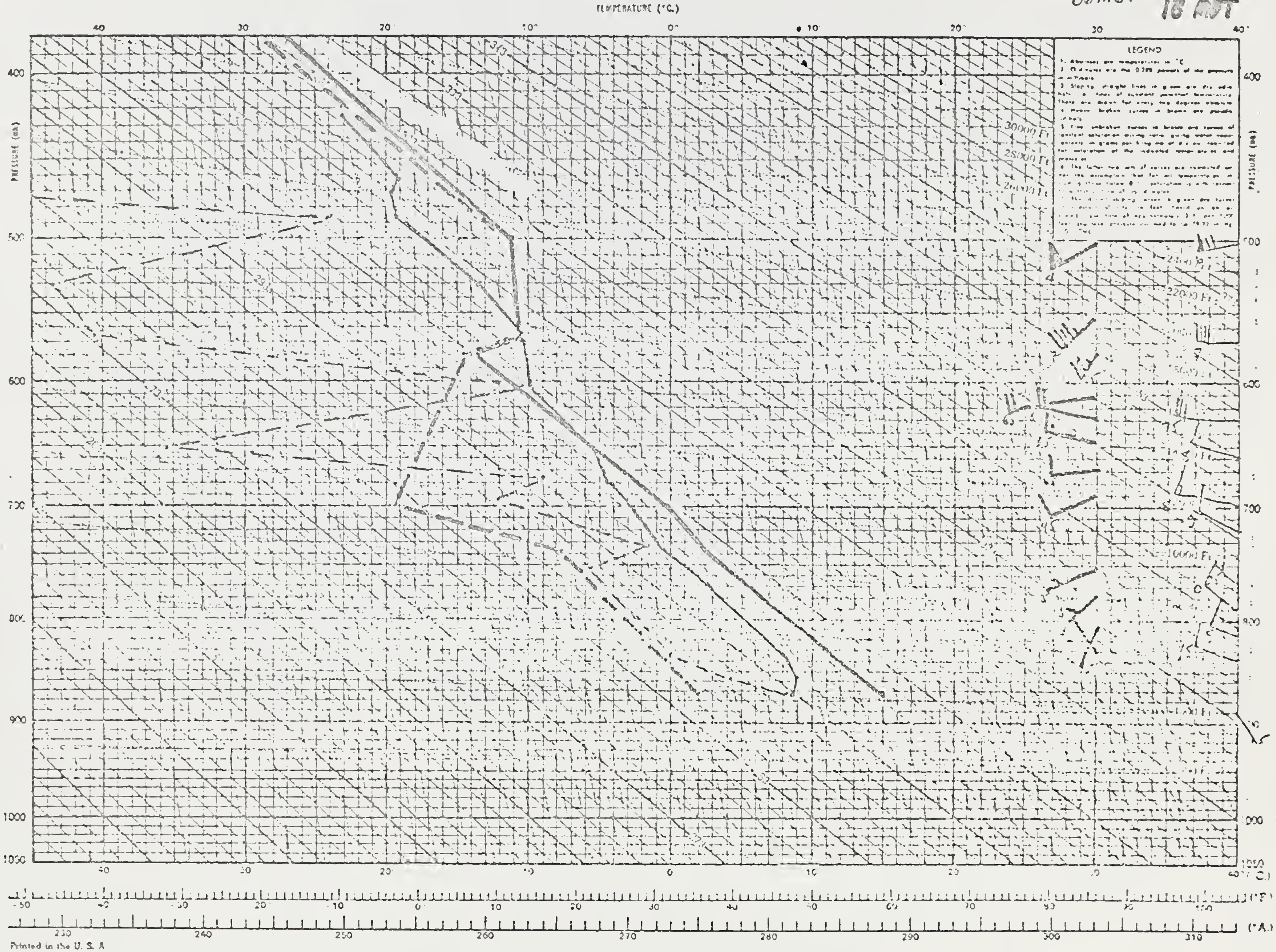
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE OCT 4, 19
STATION SLC
HOUR 06 MST 18 MDT



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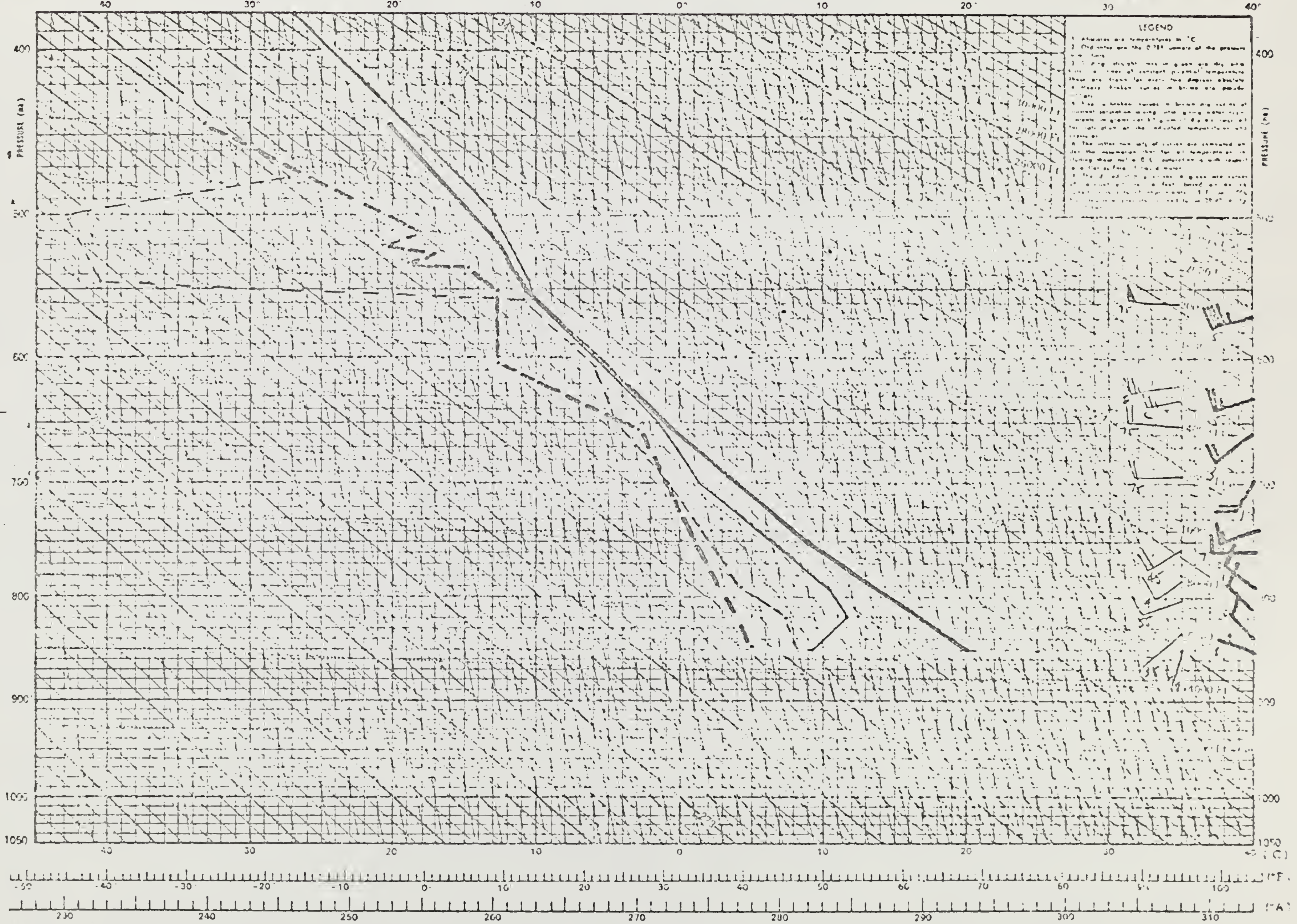
AIR TRANSPORT A[illegible]IATION OF AMERICA
METEOROLOGIC[illegible] COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 4, [illegible]74
STATION GJT
HOUR 06 MDT MERIDIAN TIME
18GDT



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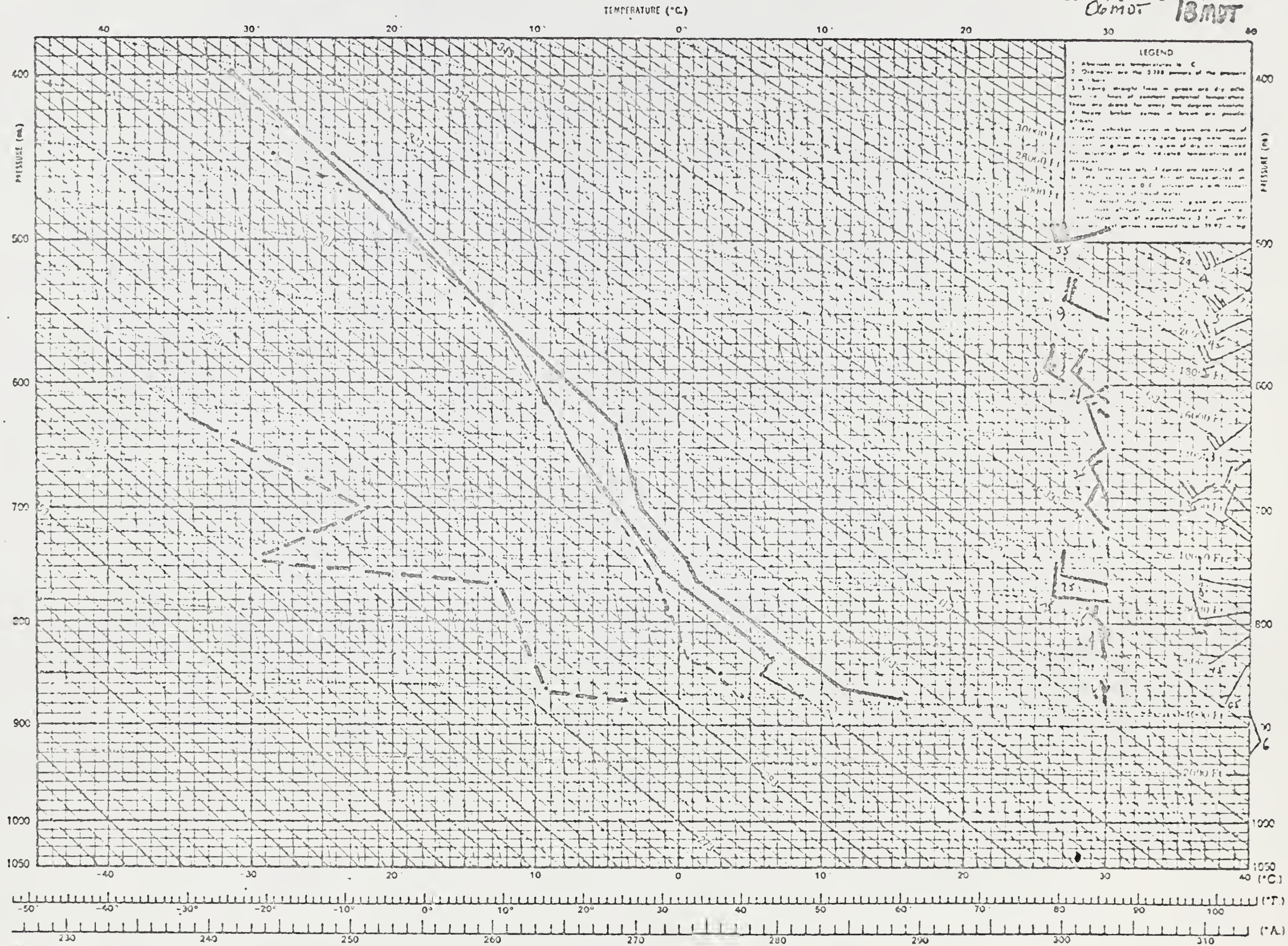
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE OCT 5, [illegible]74
STATION SLC
HOUR 06MDT 18MDT



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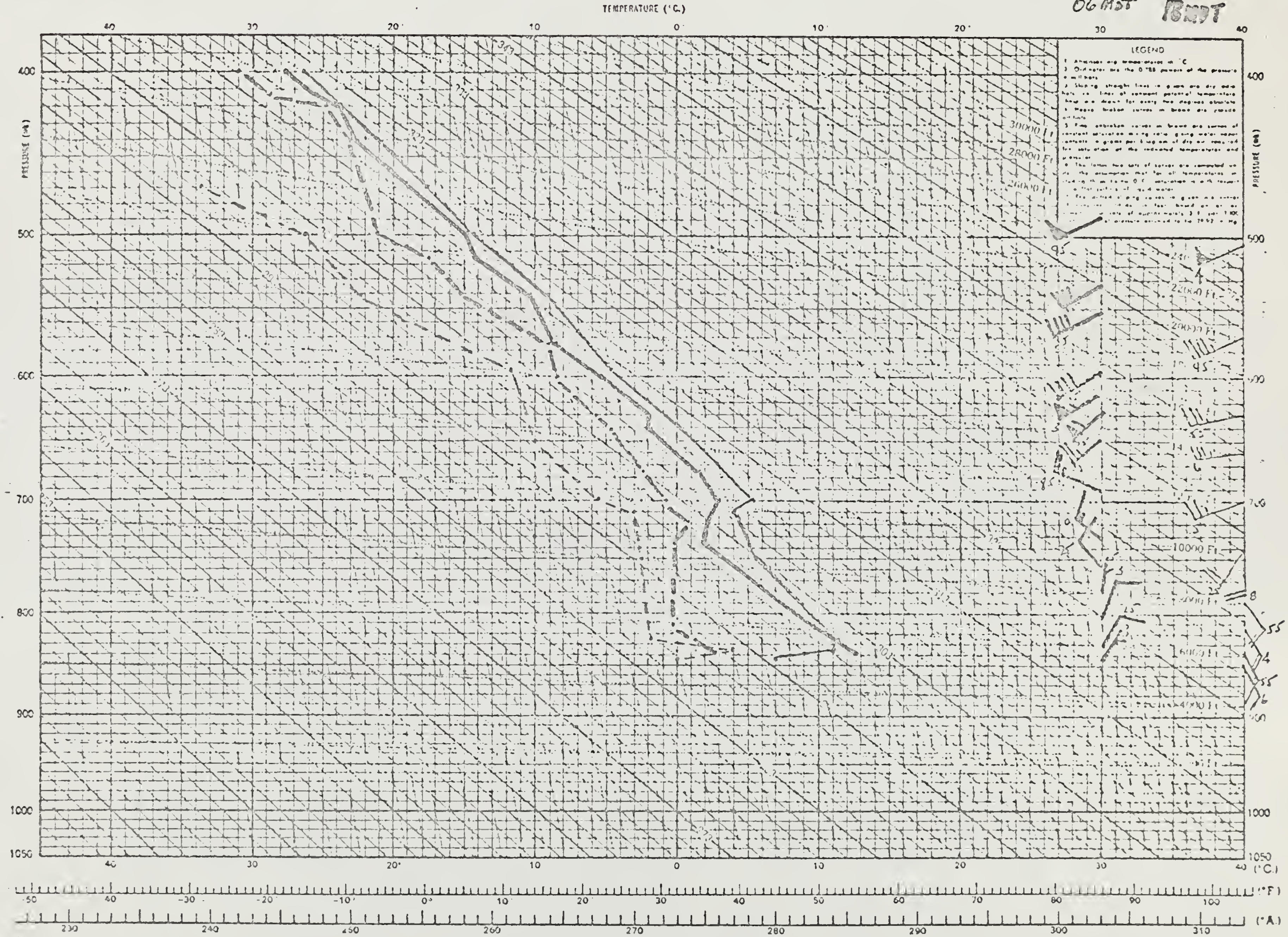
AIR TRANSPORT AS IATION OF AMERICA
METEOROLOGICAL OMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE OCT 5, 19
STATION DEN
HOUR 06 MST BMT



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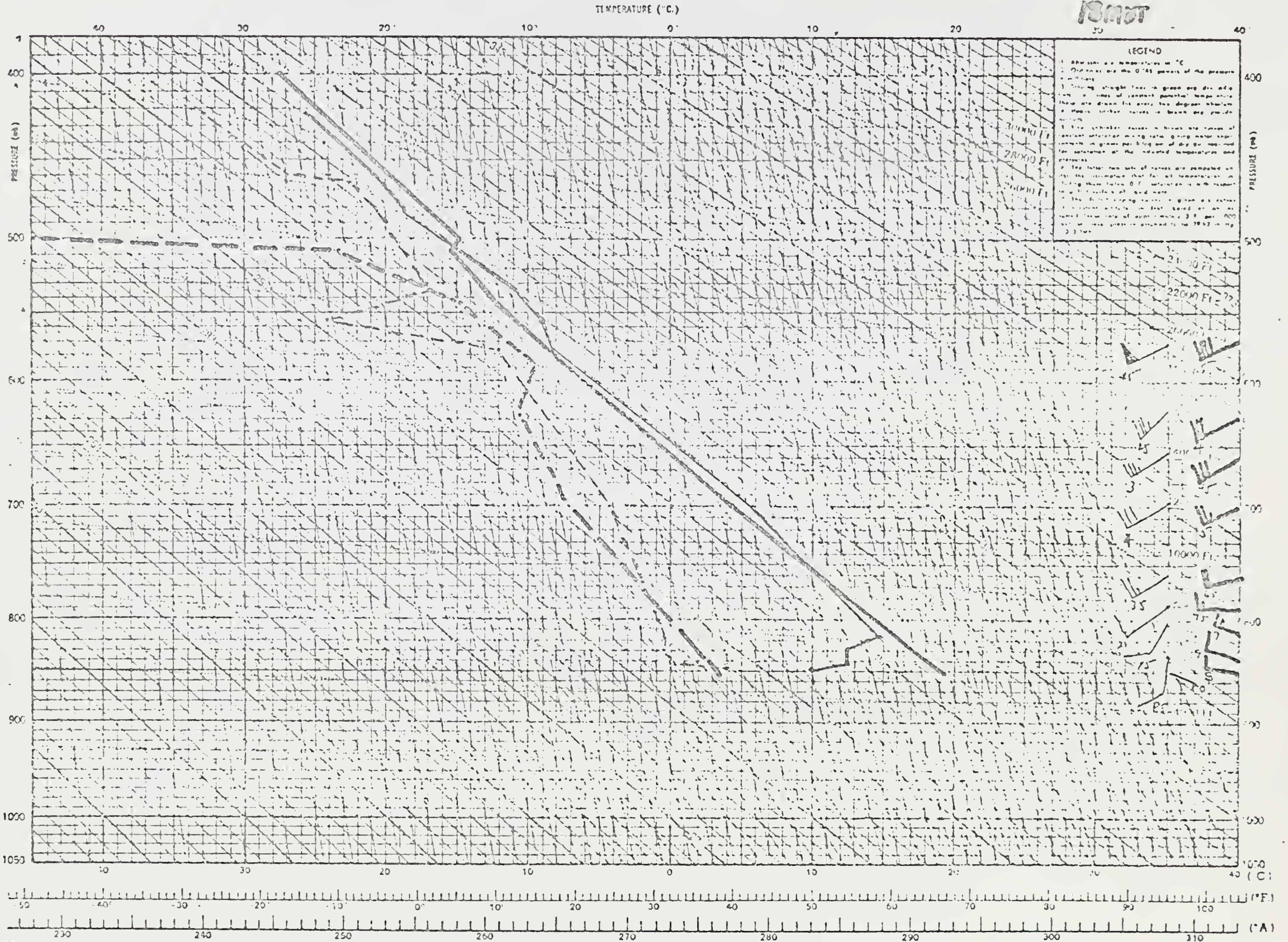
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE OCT 5, 1974

STATION GJT

HOUR 06MDT (MERIDIAN TIME)

18MDT



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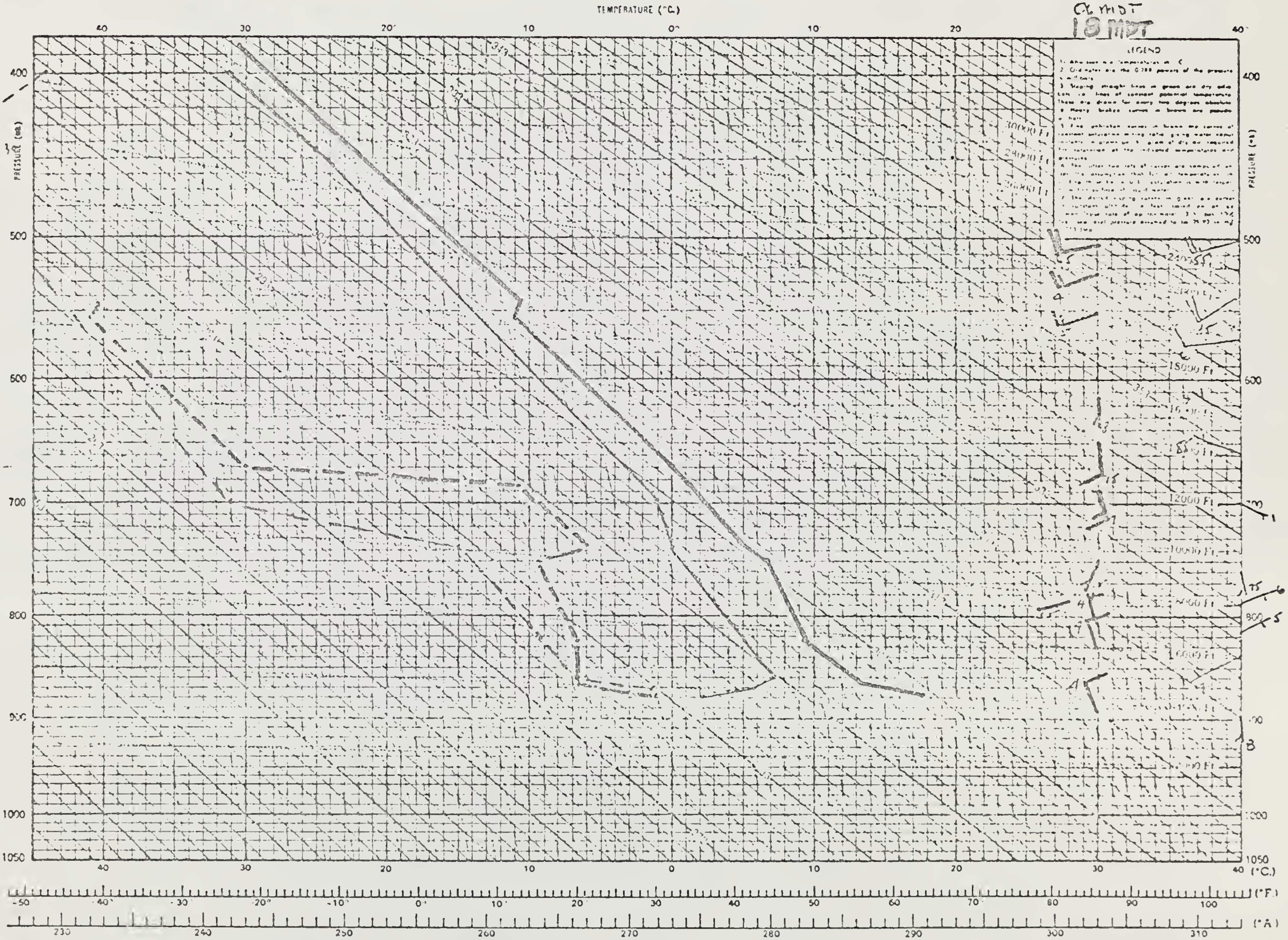
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE OCT 6, 1974
STATION SLC
HOUR (MERIDIAN TIME)
CL MDT
18 MDT



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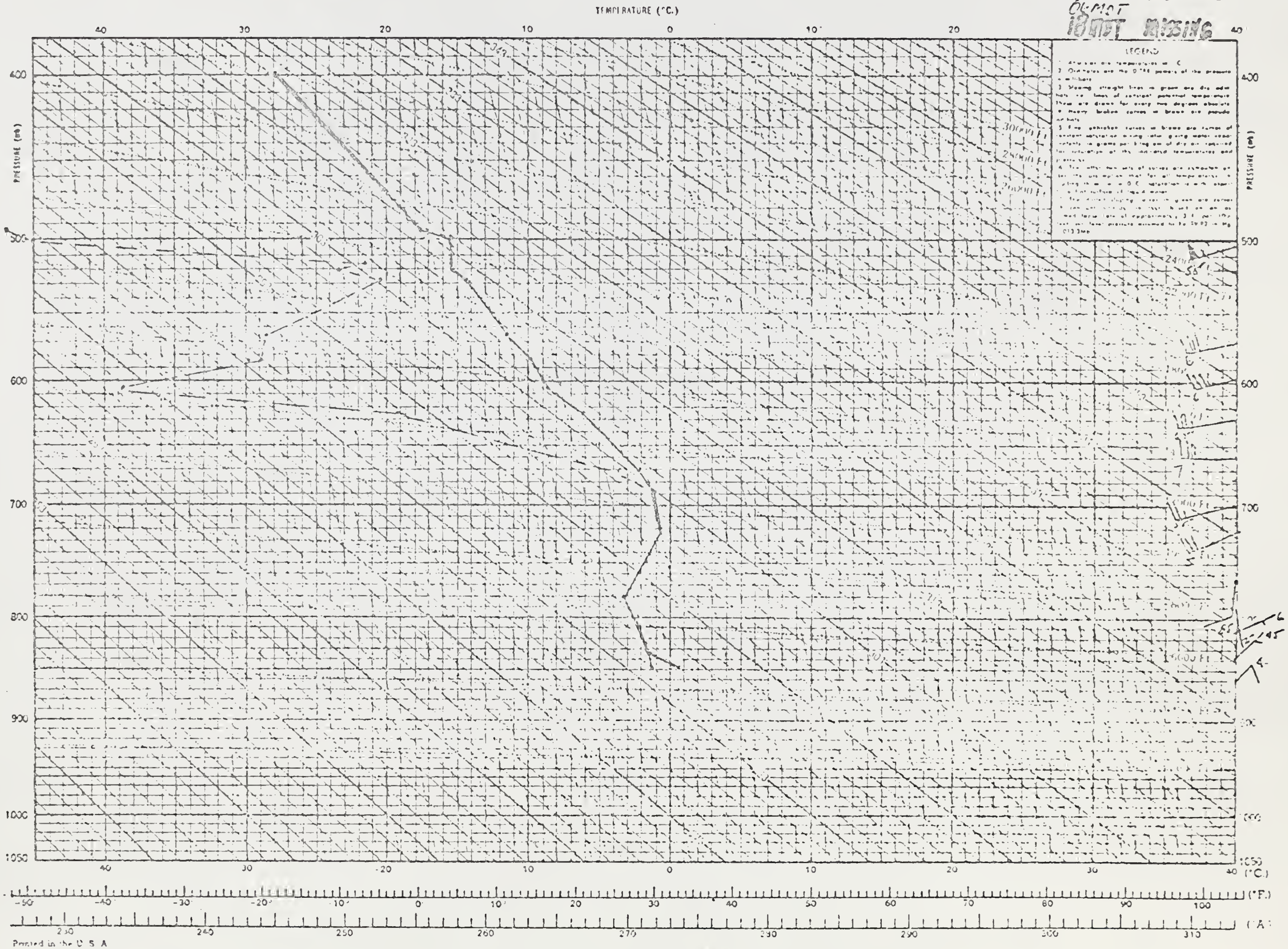
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE OCT 6, 1974
STATION DEN
HOUR (... MERIDIAN TIME) 06 MST
18MST MISSING



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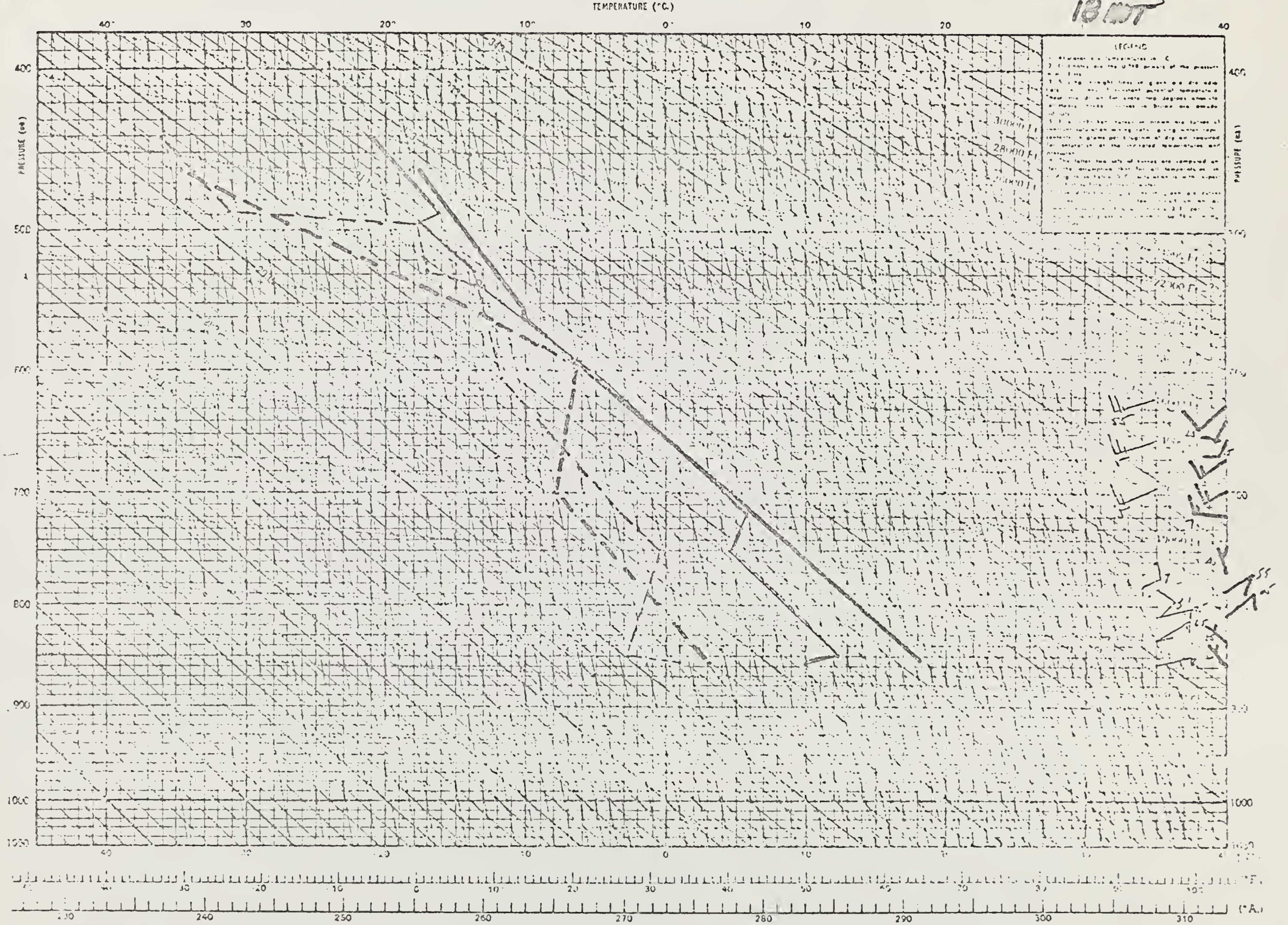
AIR TRANSPORT A IATION OF AMERICA
METEOROLOGIC COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE__ Oct 6, 4
STATION GJT
HOUR 06MDT (…IAN TIME)
18MDT



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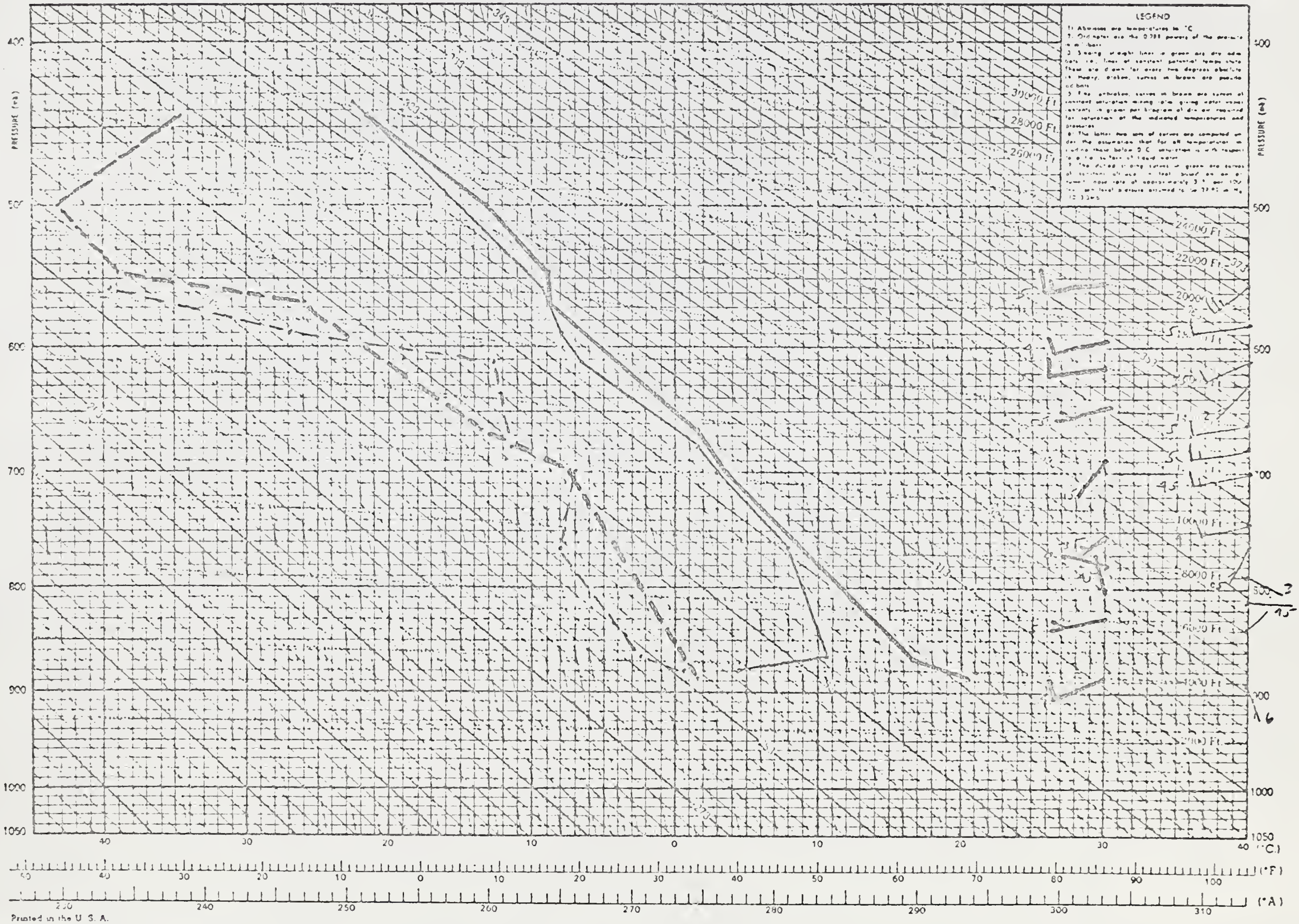
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 7, 1974
STATION SLC SLC
HOUR ___ (__TH MERIDIAN TIME)
06 MDT 18MDT



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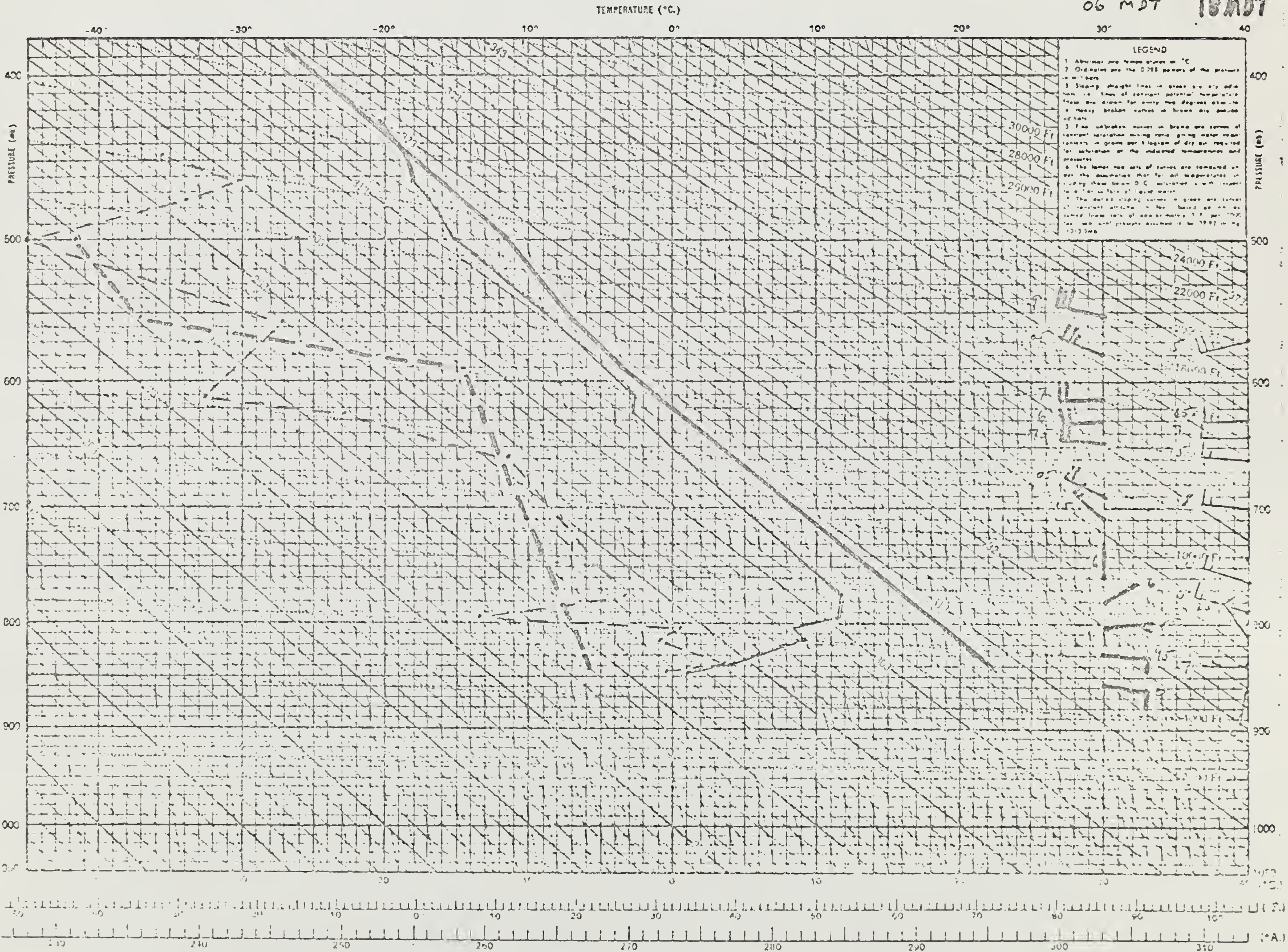
Air Transport Association of America
Meteorological Committee Chart III
Pseudo-Adiabatic Diagram

Date Oct 7, 1974

Station DEN DEN

Hour 06 MDT ___th Meridian Time 18 MDT



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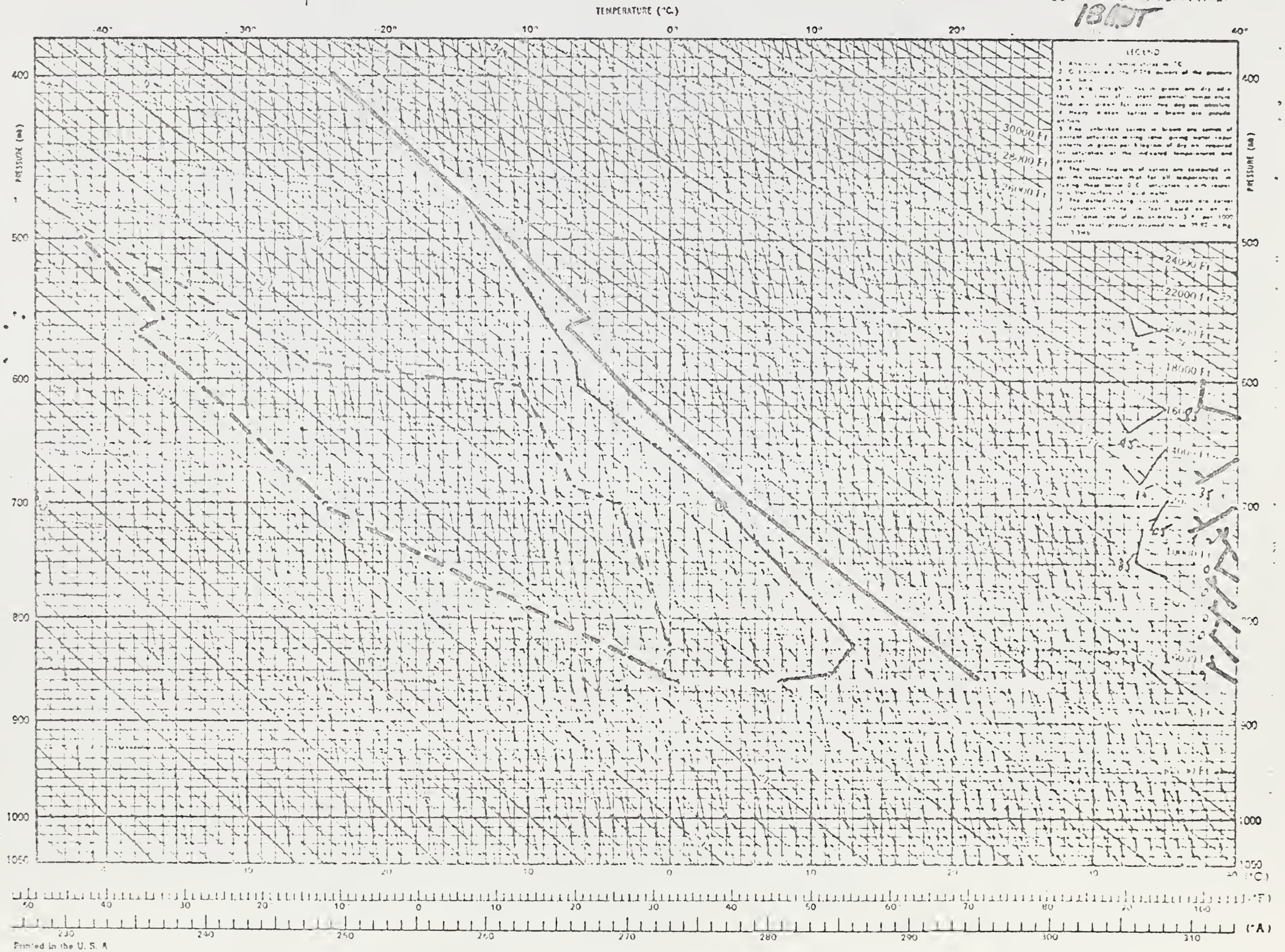
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE October 7, 1974
STATION GJT
HOUR 06MDT (…ERIDIAN TIME) 18MDT



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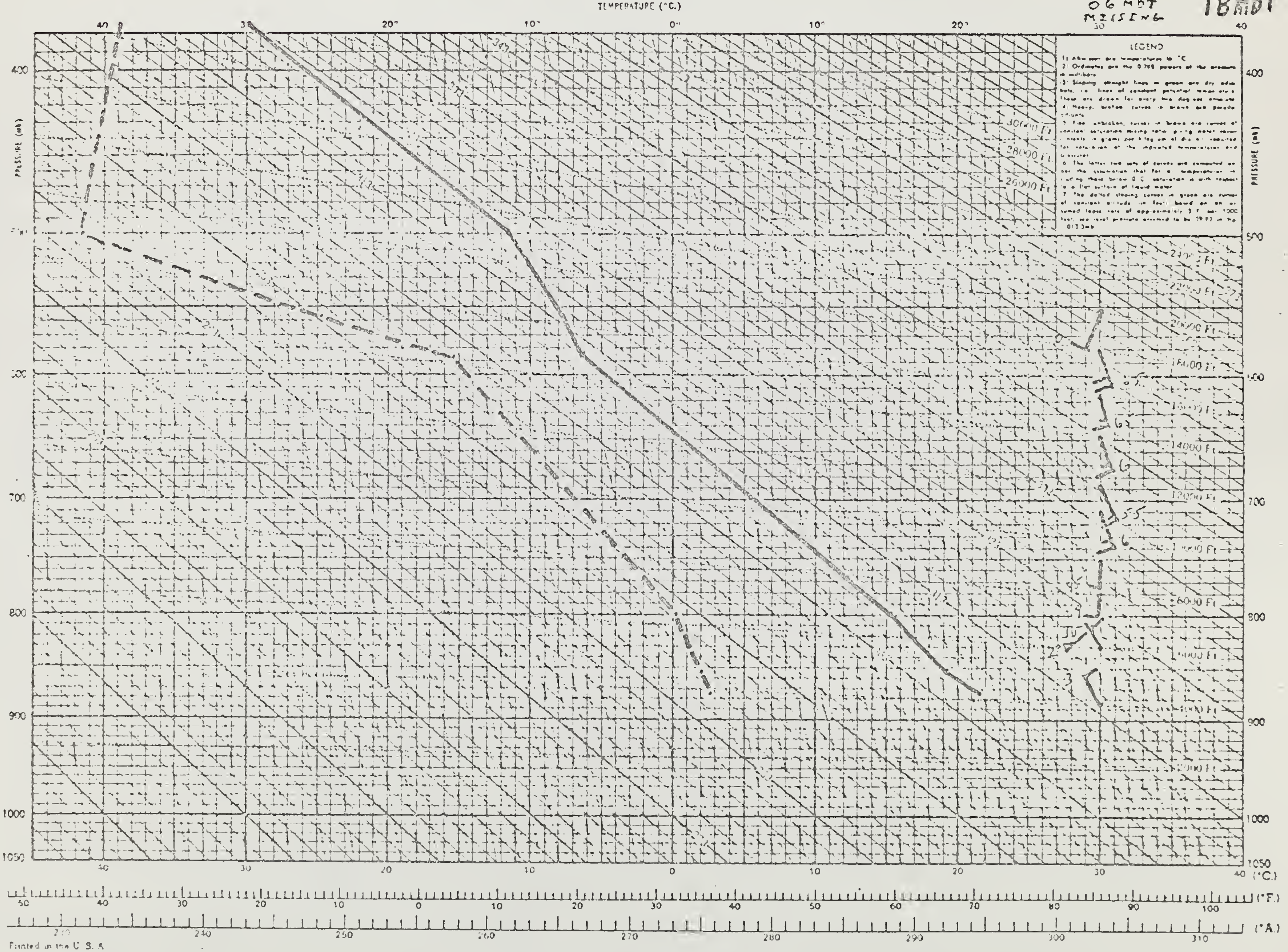
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 8, 1974
STATION SLC SLC
HOUR ___ TH MERIDIAN TIME 06 MDT MISSING 18MDT



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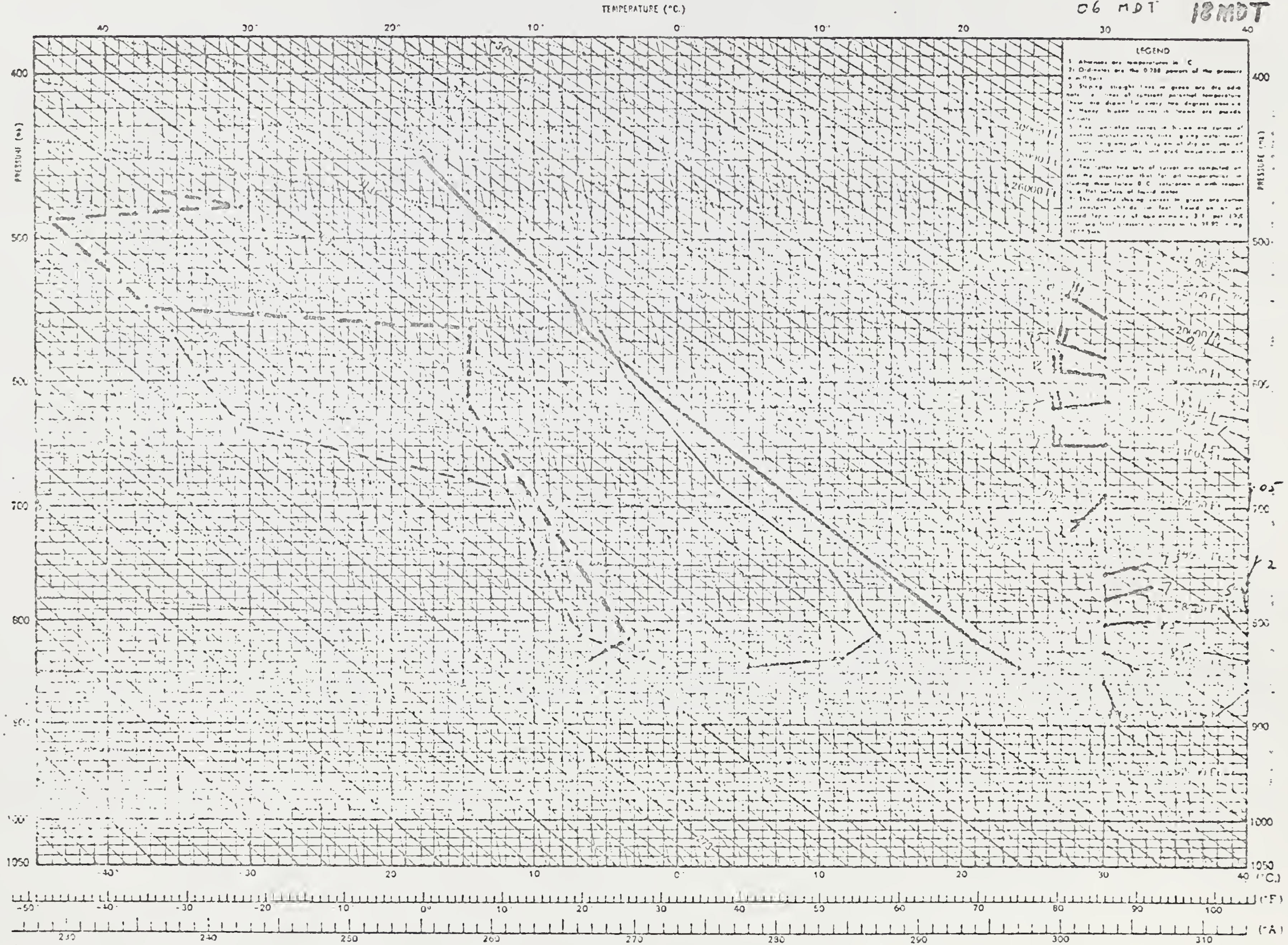
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 8, 1974
STATION DEN DEN
HOUR ___ ___TH MERIDIAN TIME 06 MDT 18MDT



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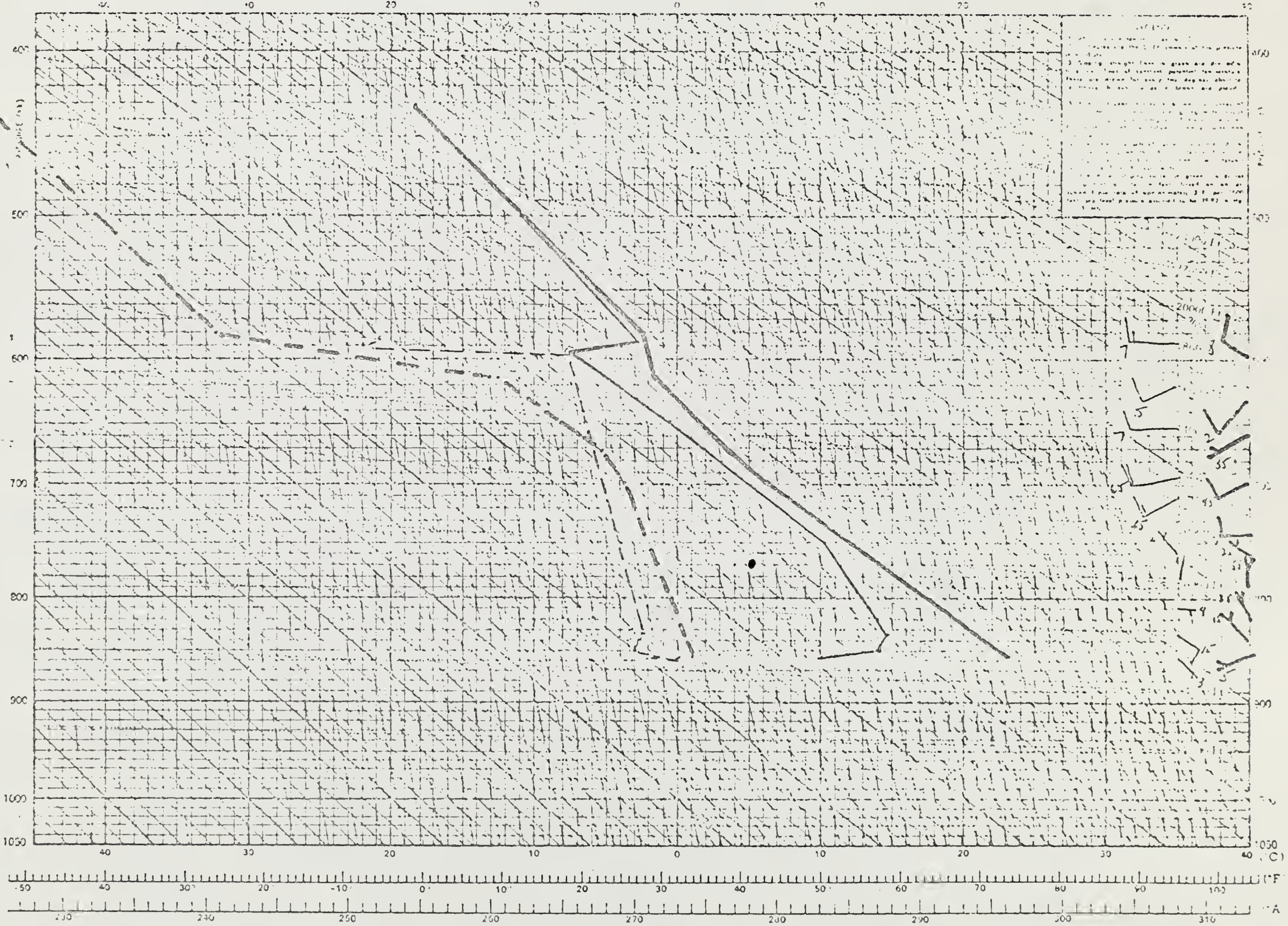
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE October 8, [illegible]74
GJT
[illegible]
18 MDT



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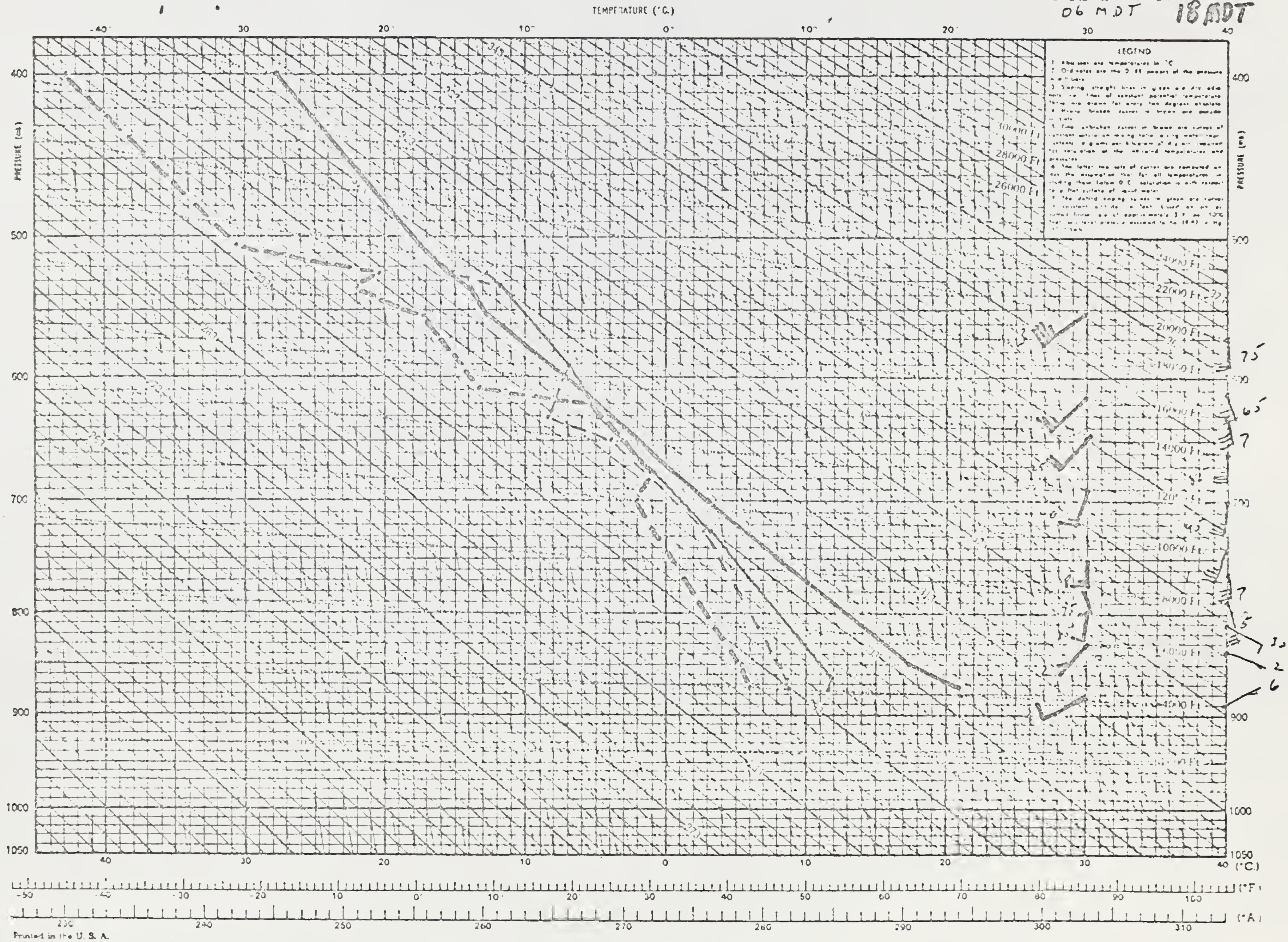
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 9, 1974
STATION SLC SLC
HOUR __ TH MERIDIAN
06 MDT 18 MDT



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METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

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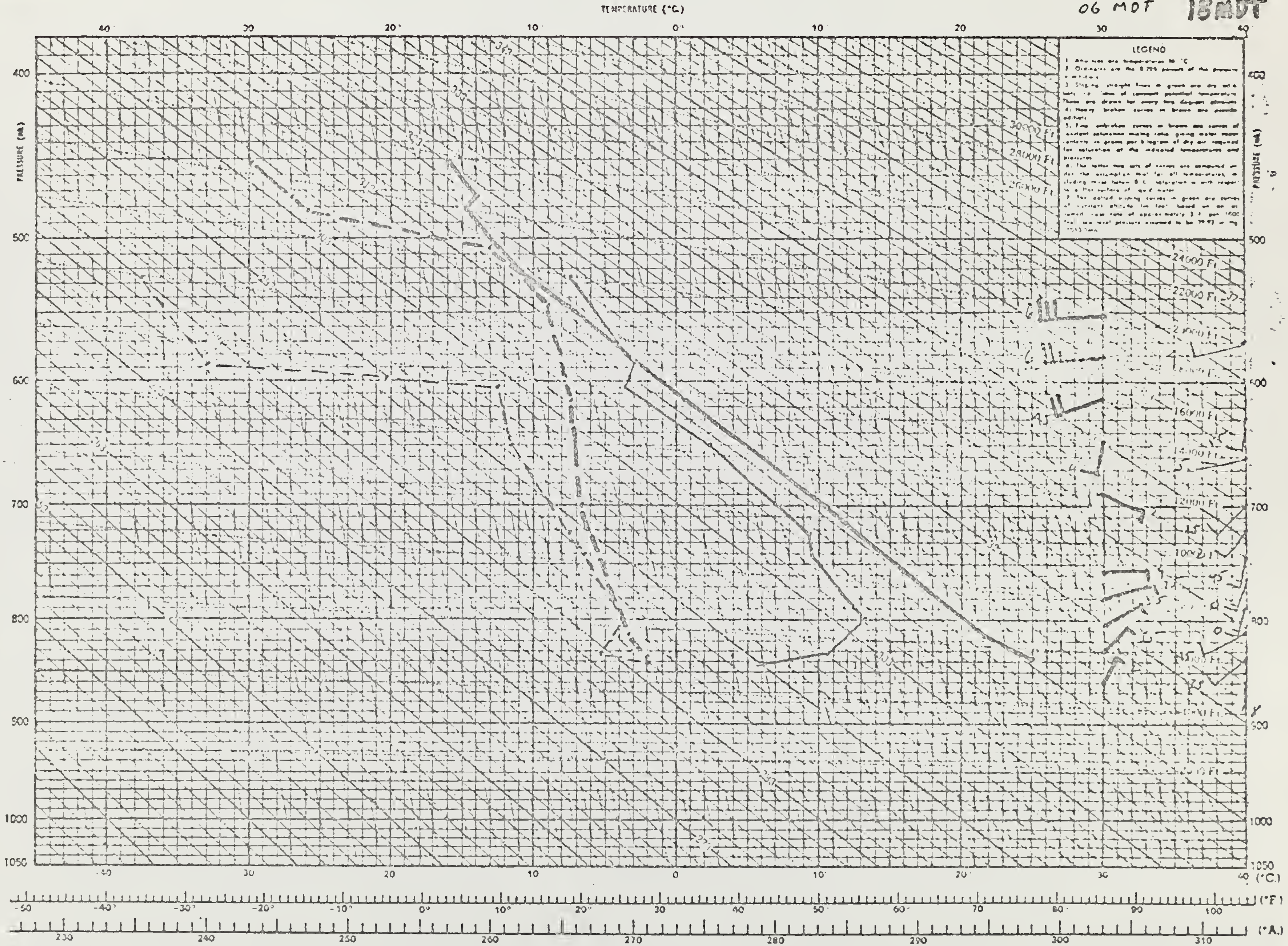
HOUR ___ ' __TH MERIDIAN TIME
06 MDT 18MDT



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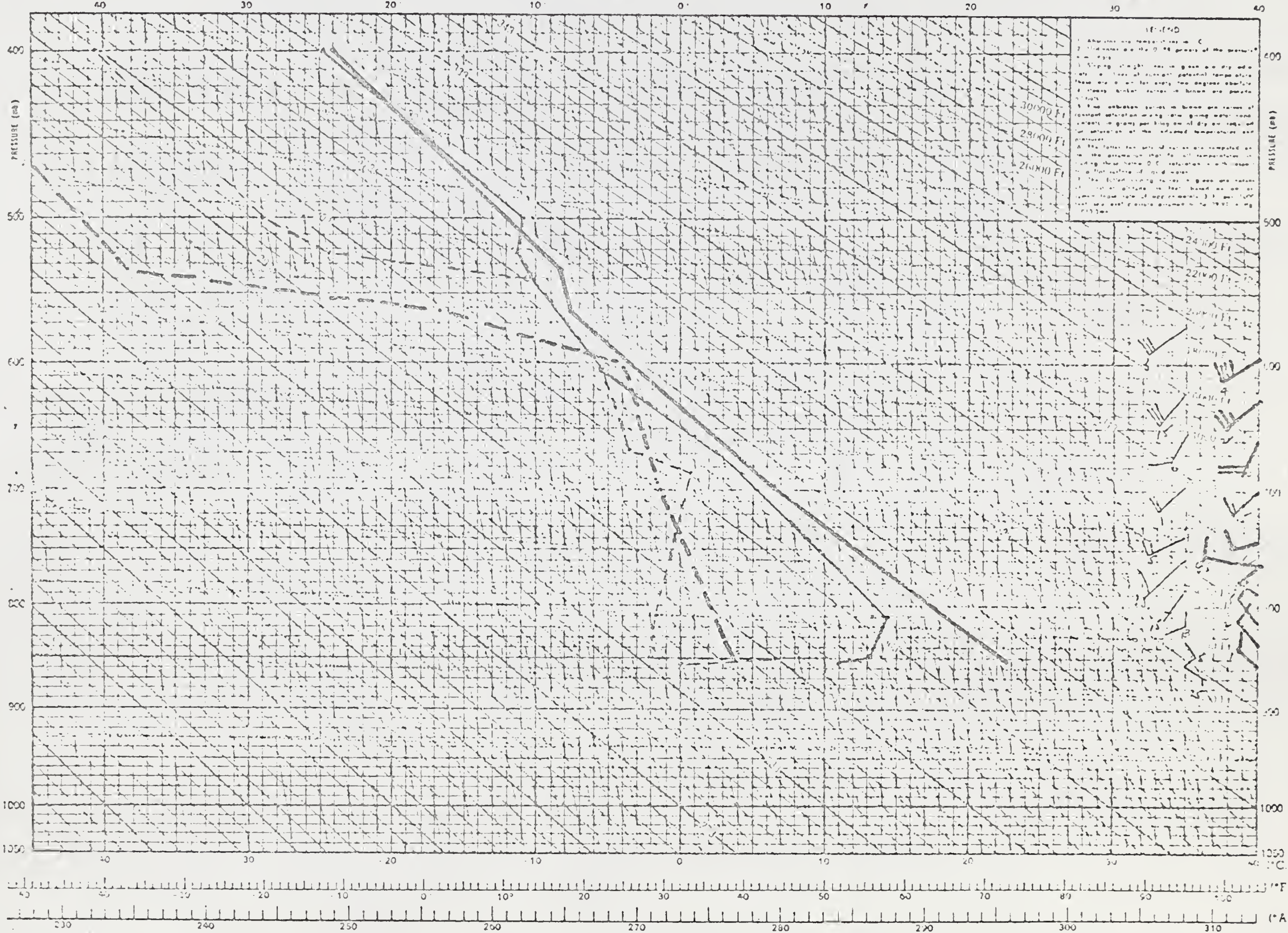
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE October 9, 1974
STATION GJT
HOUR 0600 MERIDIAN TIME
MDT



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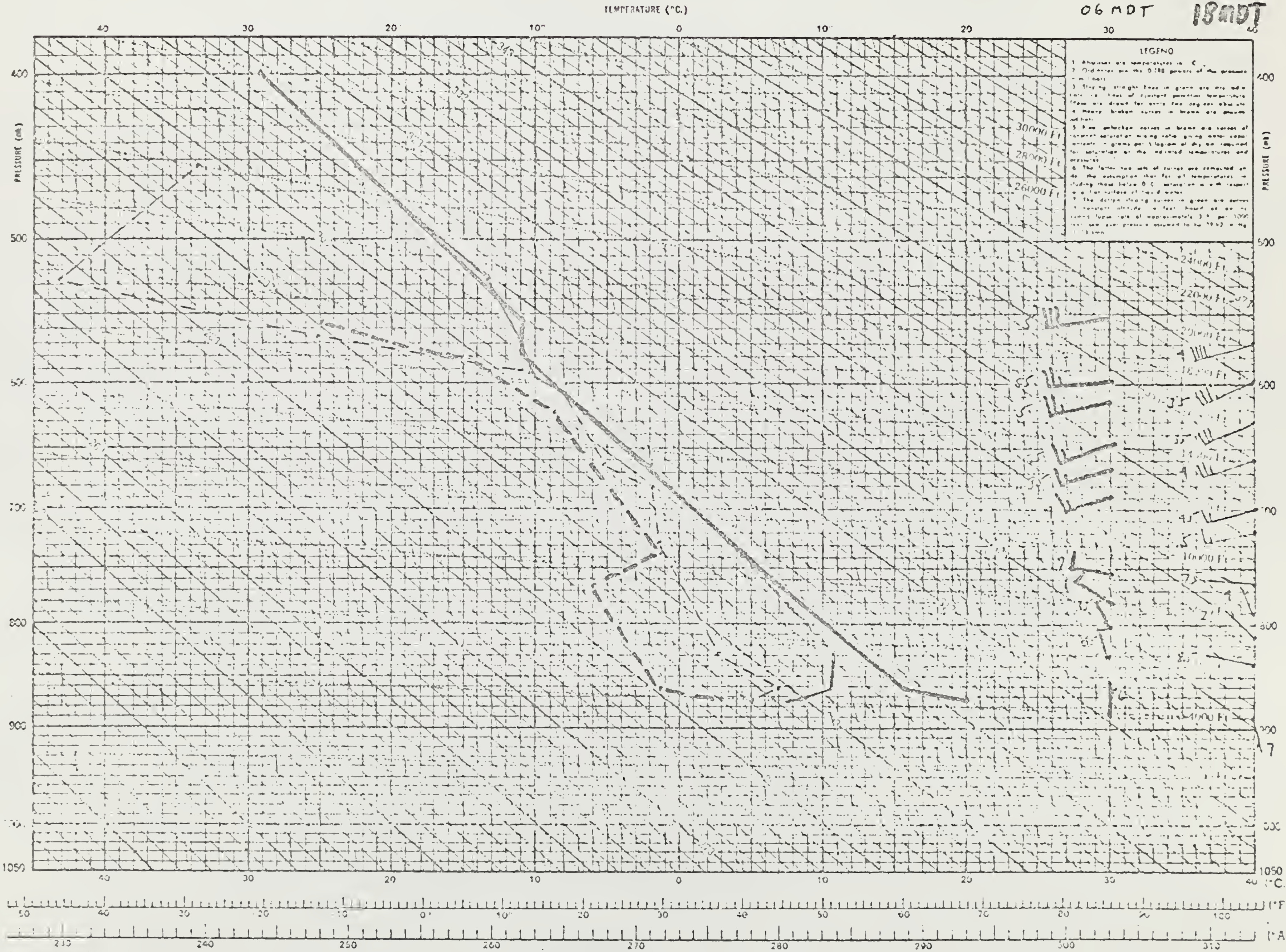
METEOROLOGICAL COMMITTEE CHART III

PSEUDO-ADIABATIC DIAGRAM

DATE Oct 10, 1974

STATION SLC SLC

HOUR 06 MDT 18MDT



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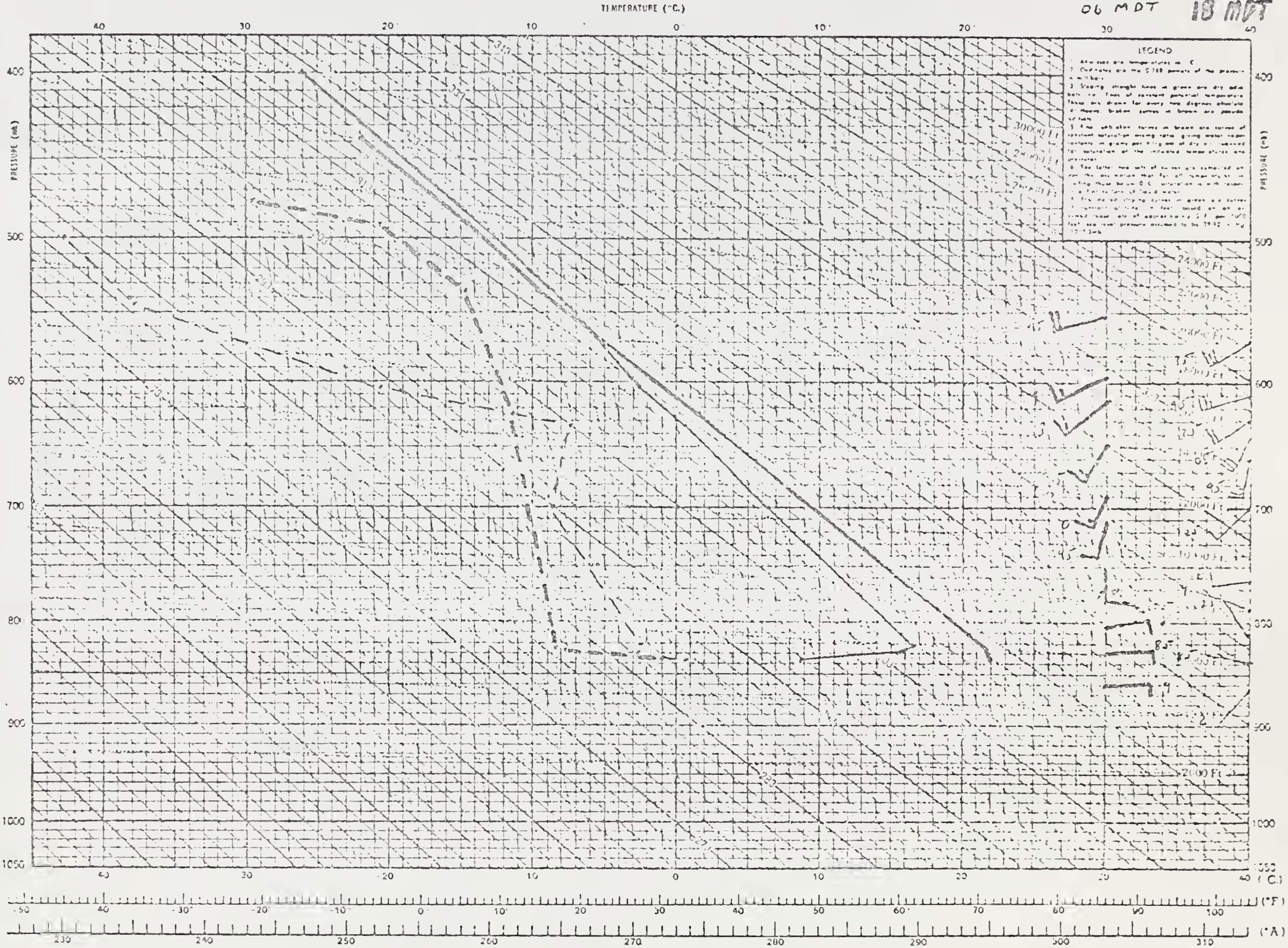
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 10, 1979
STATION DEN DEN
HOUR __ __TH MERIDIAN T
06 MDT 18 MDT



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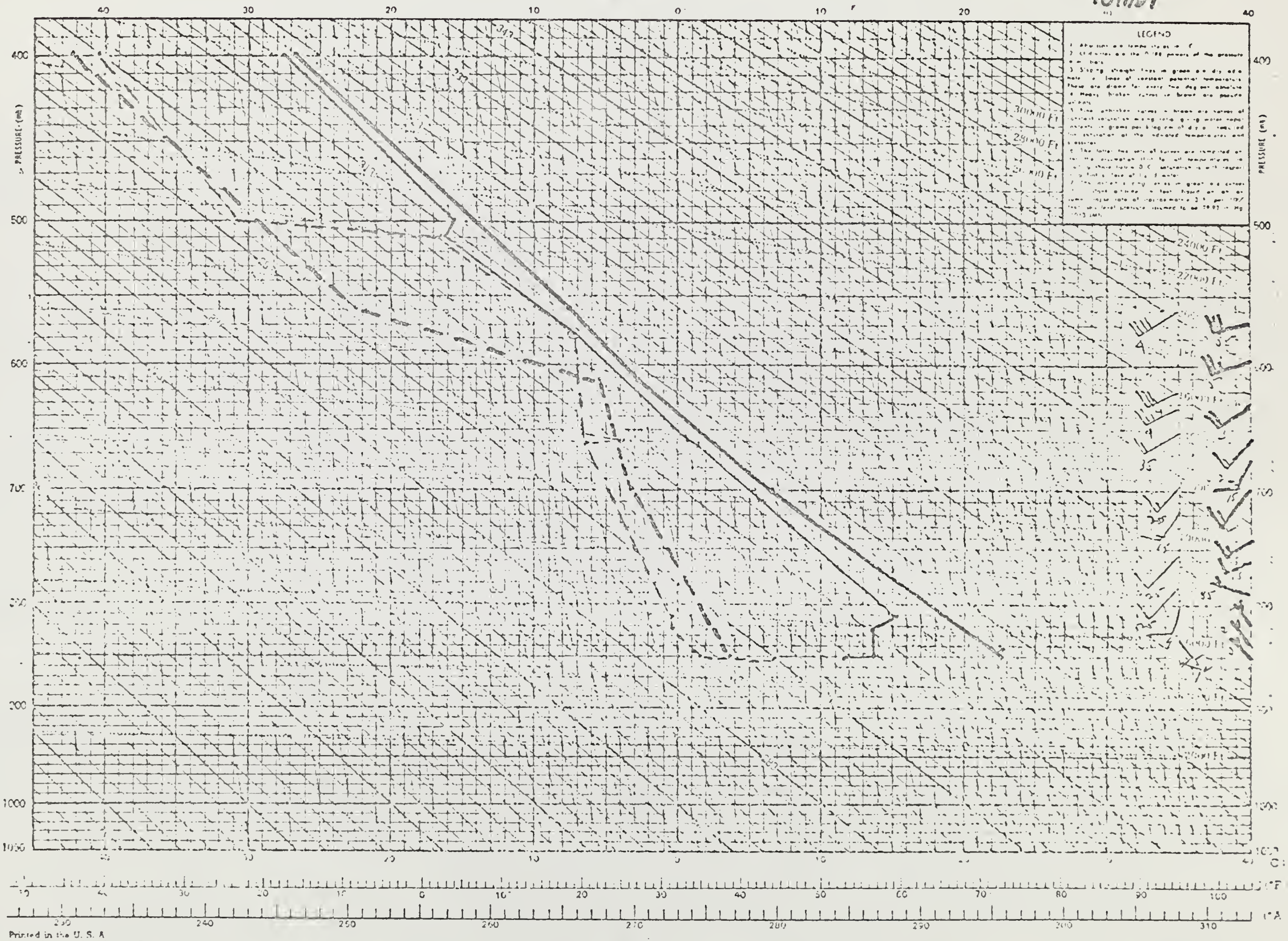
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 8^{10}, 1974
STATION GJT
HOUR 06MDT MERIDIAN TIME
18MDT



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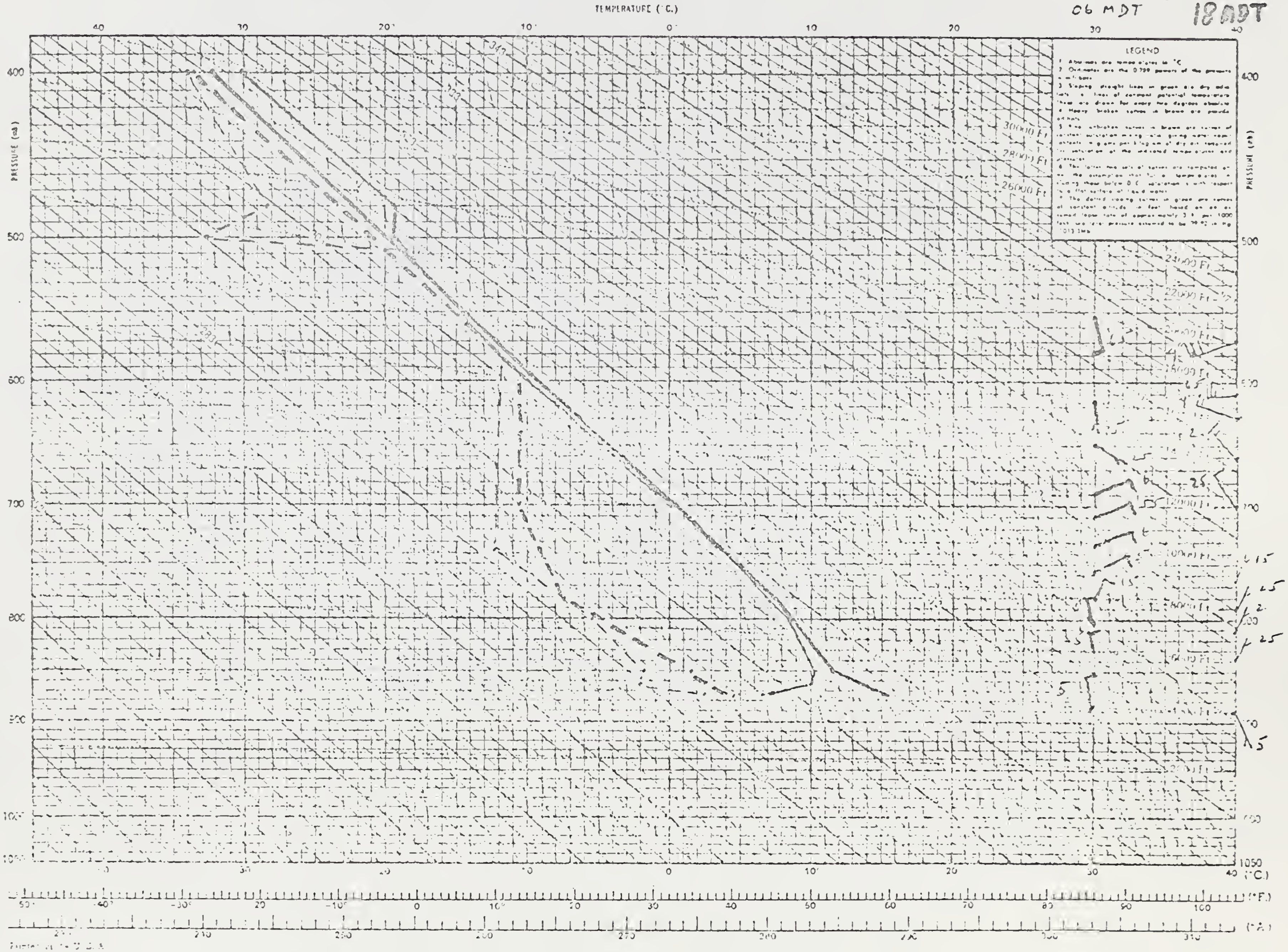
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 11, 74
STATION SLC SLC
HOUR ___TH MERIDIAN TIME 06 MDT 18 MDT



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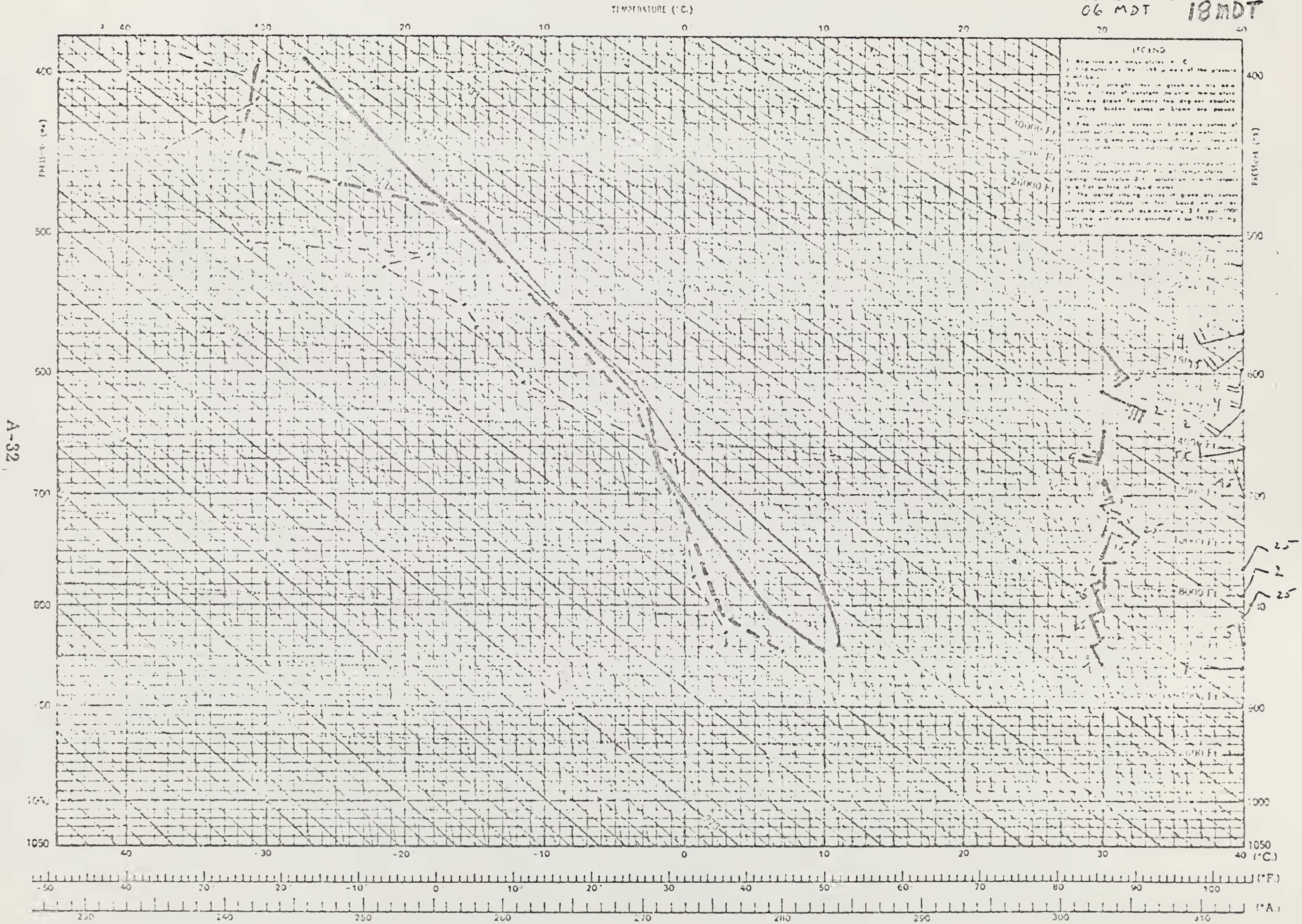
AIR TRANSPORT ASSOCIATION OF AMERICA
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 11, 197
STATION DEN DEN
HOUR 06 MDT 18 MDT



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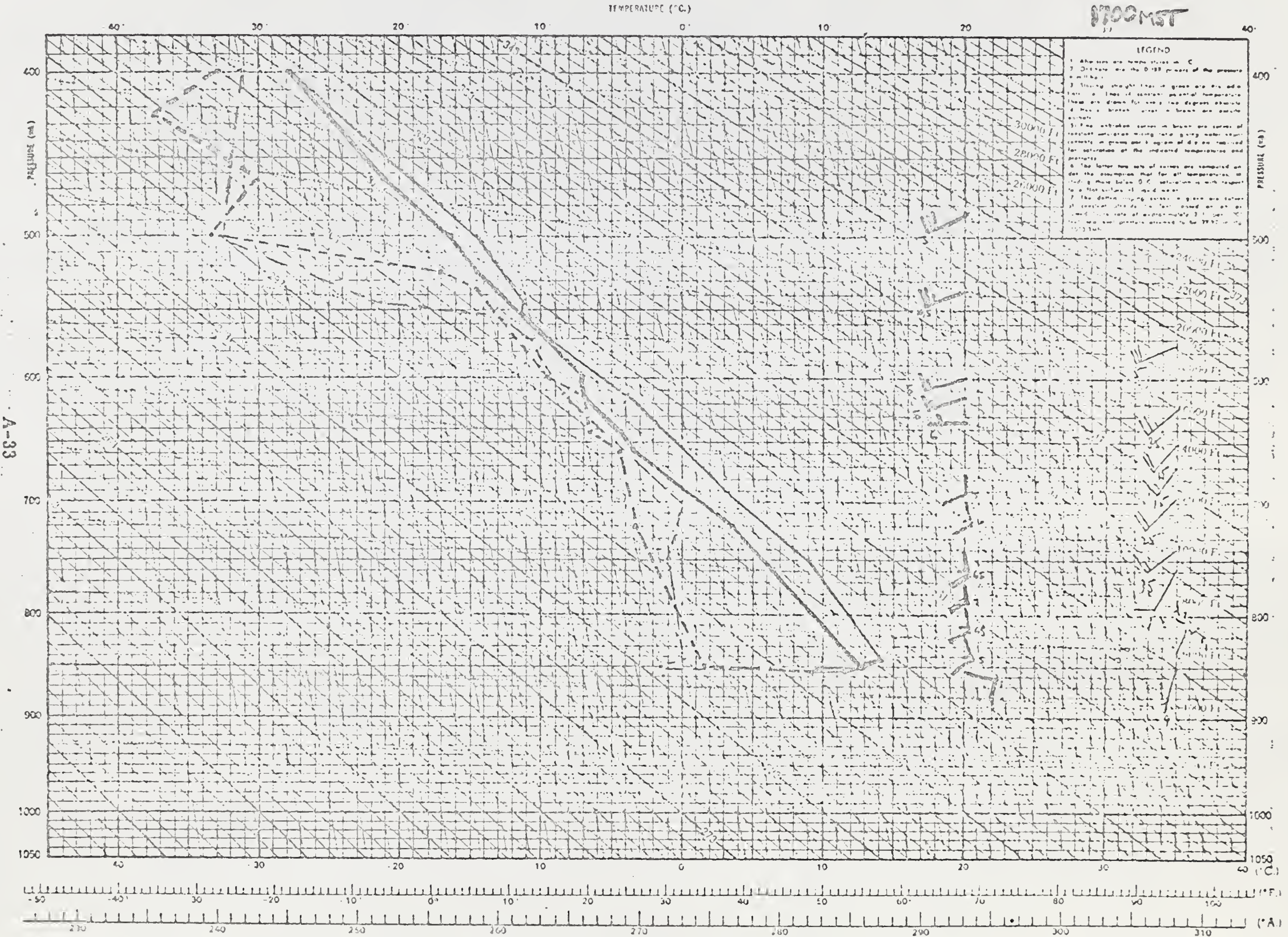
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE OCT 11, 1974
STATION GJT
HOUR 06110T MERIDIAN TIME
0700MST



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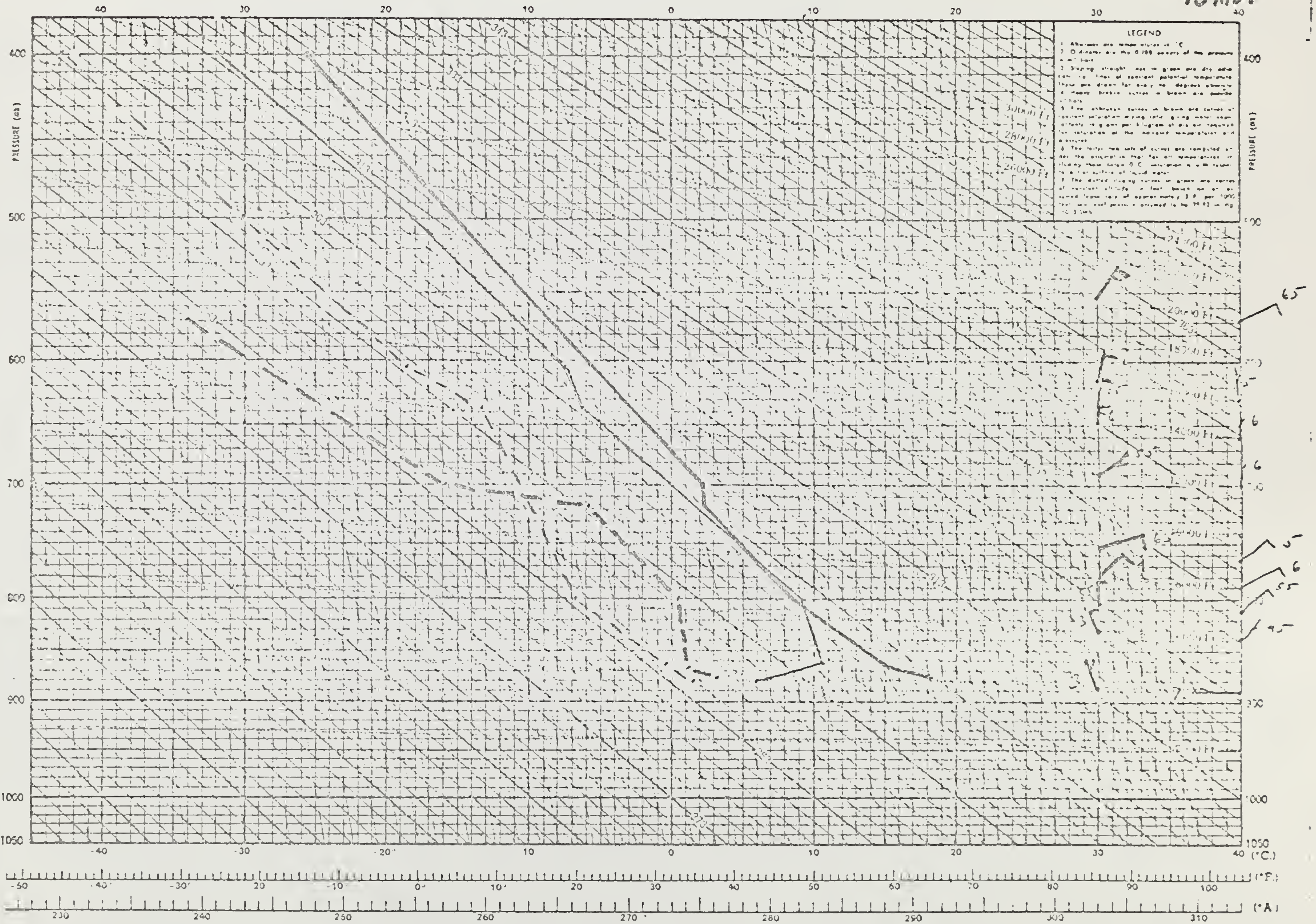
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 12, 1974
STATION SLC ___ SLC
HOUR ___ th MERIDIAN TIME
06 MDT 18 MDT



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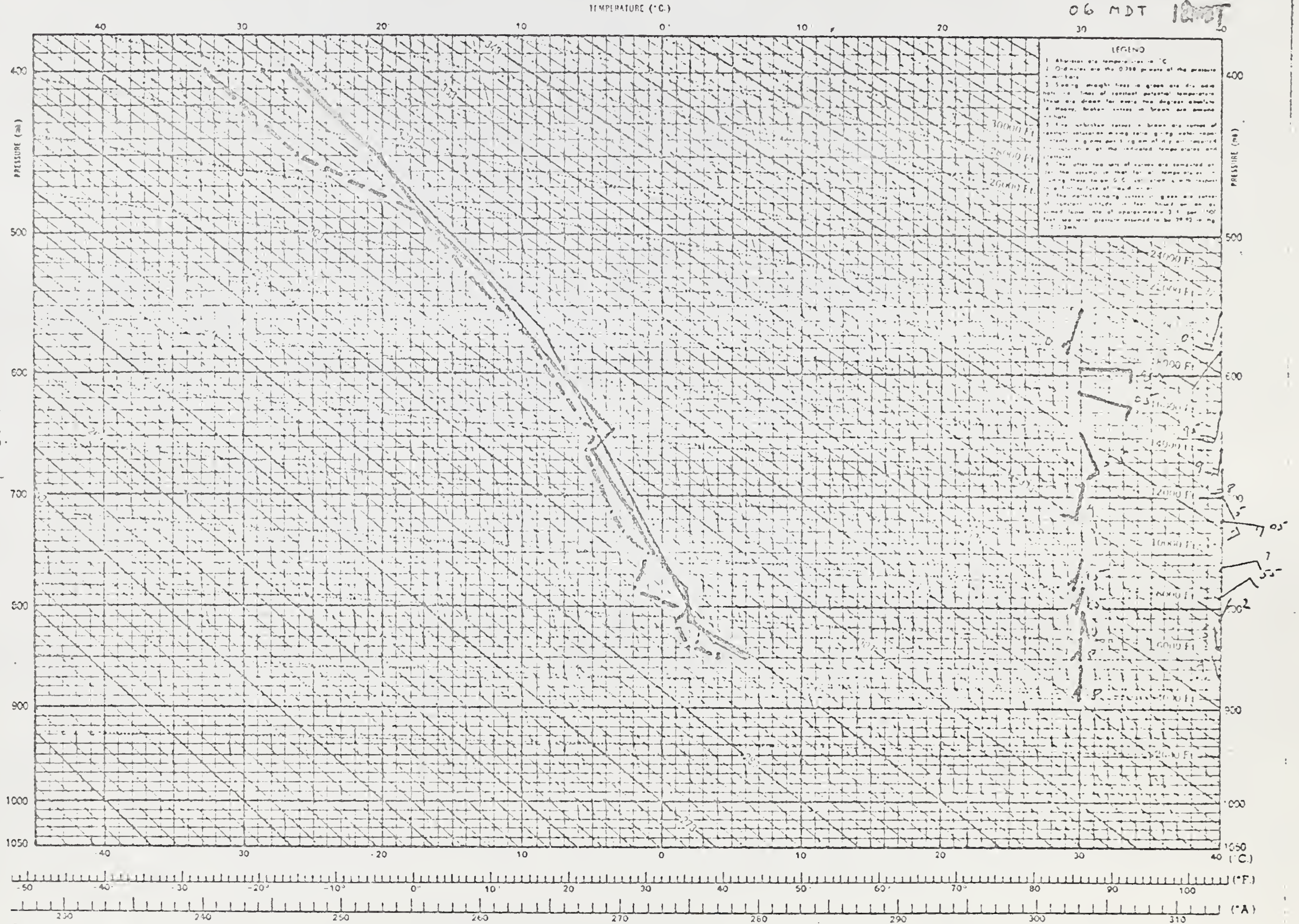
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 12, 1974
STATION DEN DEN
HOUR ___ TH MERIDIAN TIME 06 MDT 1[illegible]



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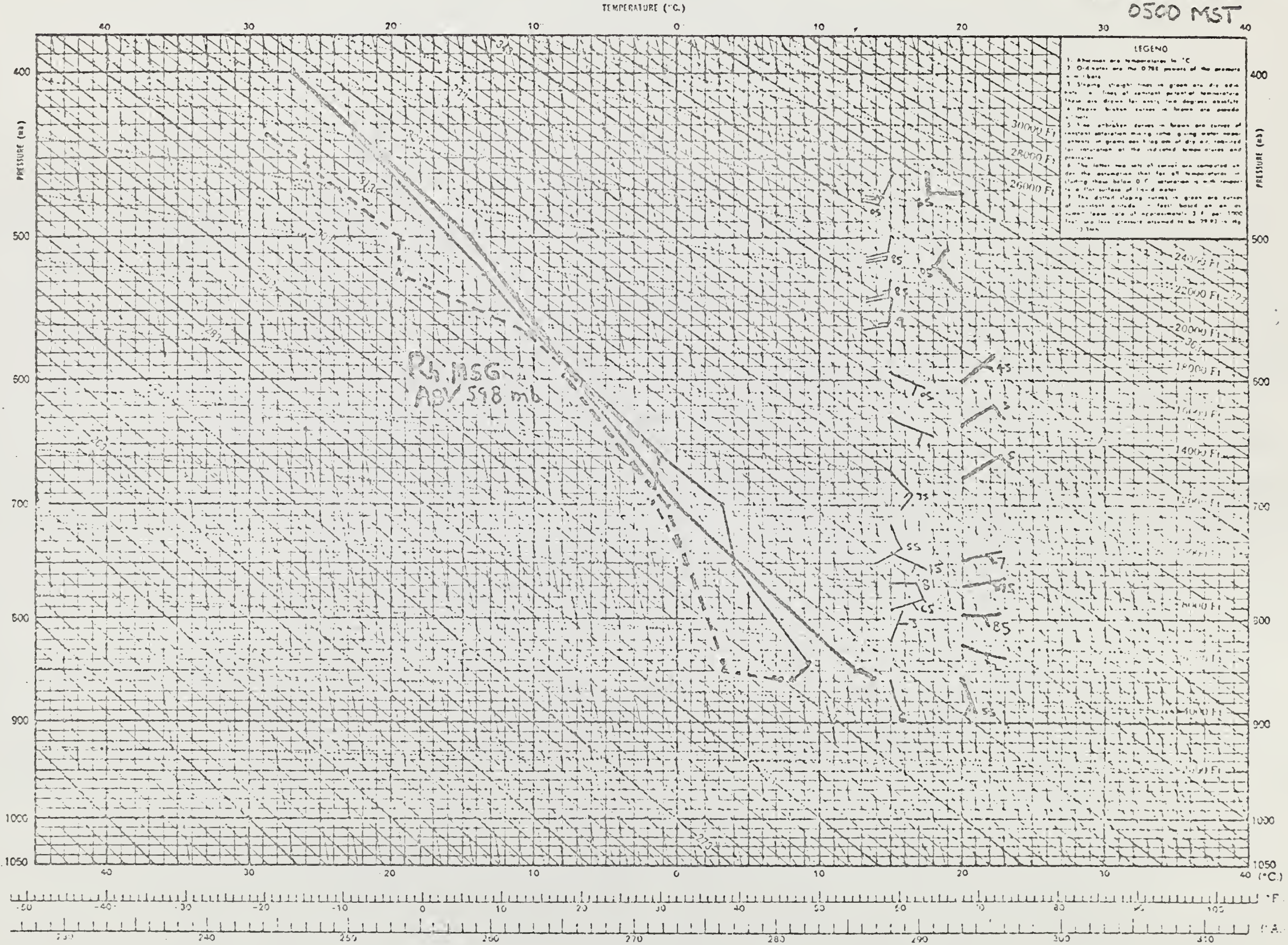
PSEUDO-ADIABATIC DIAGRAM

DATE 10/12/74
STATION GJT
HOUR 1700 MST
0500 MST



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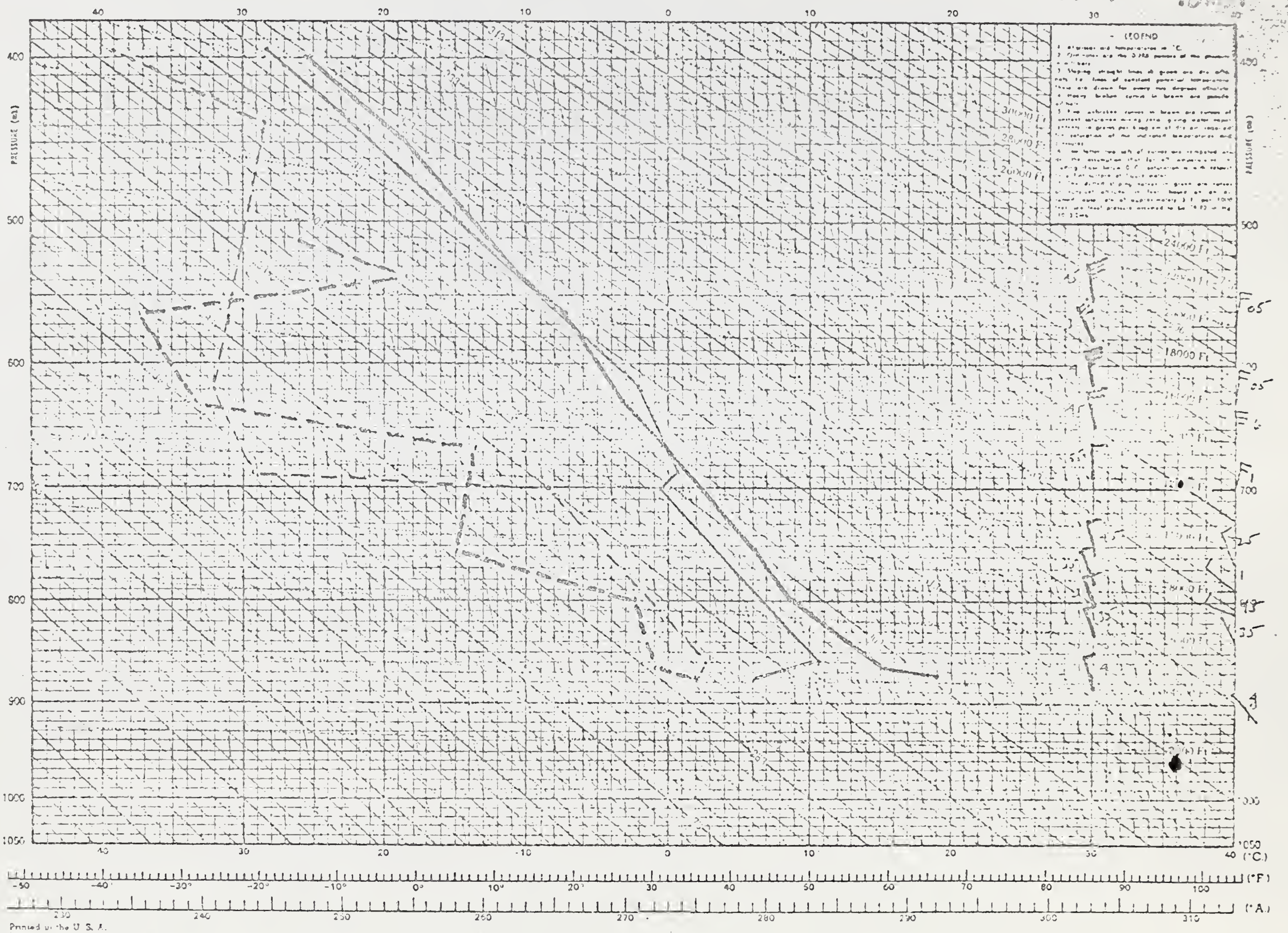
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 13, 74
STATION SLC SLC
HOUR 06 MDT 18



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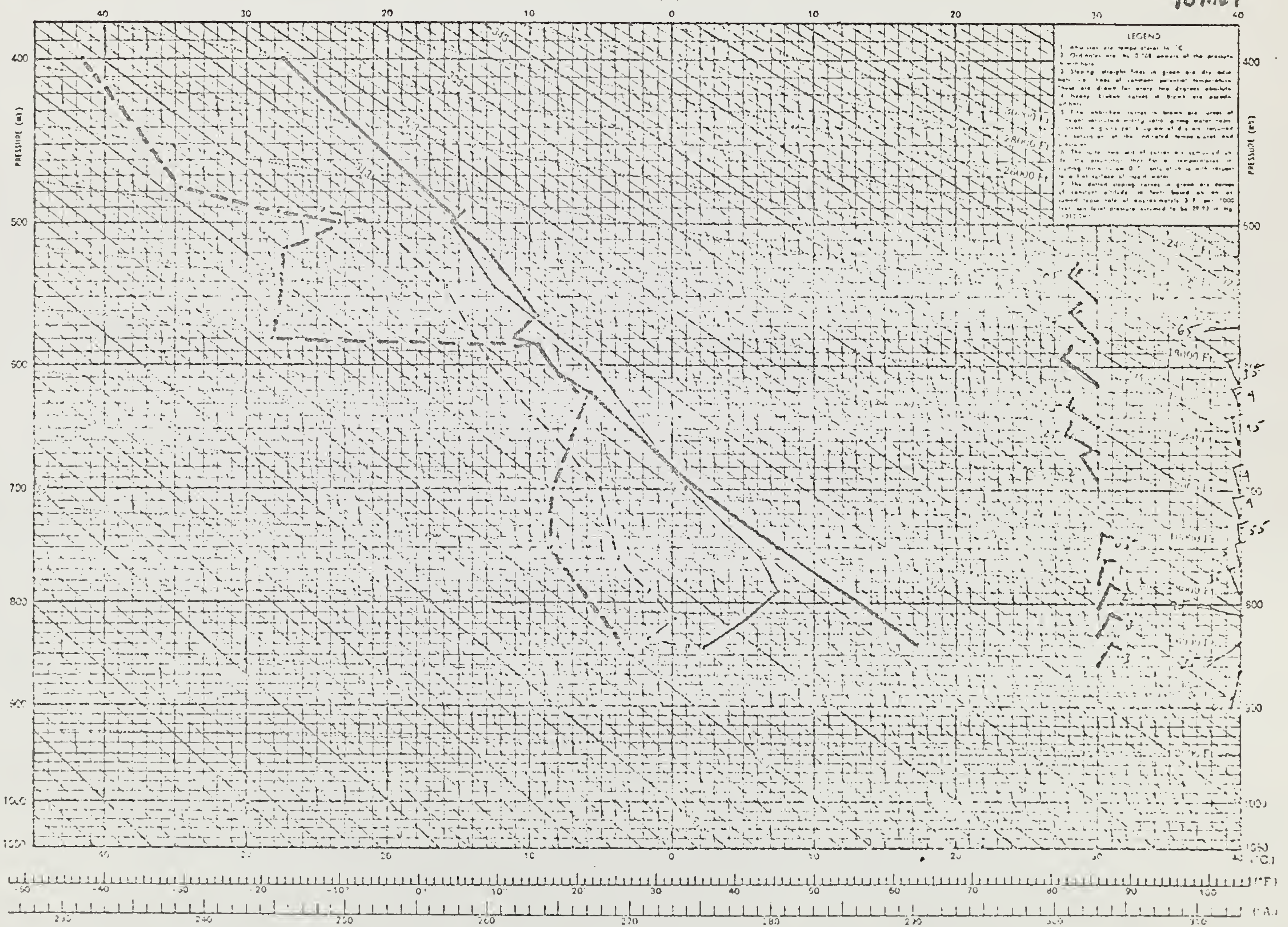
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 13 19
STATION DEN DEN
HOUR 06 MDT 18 MDT



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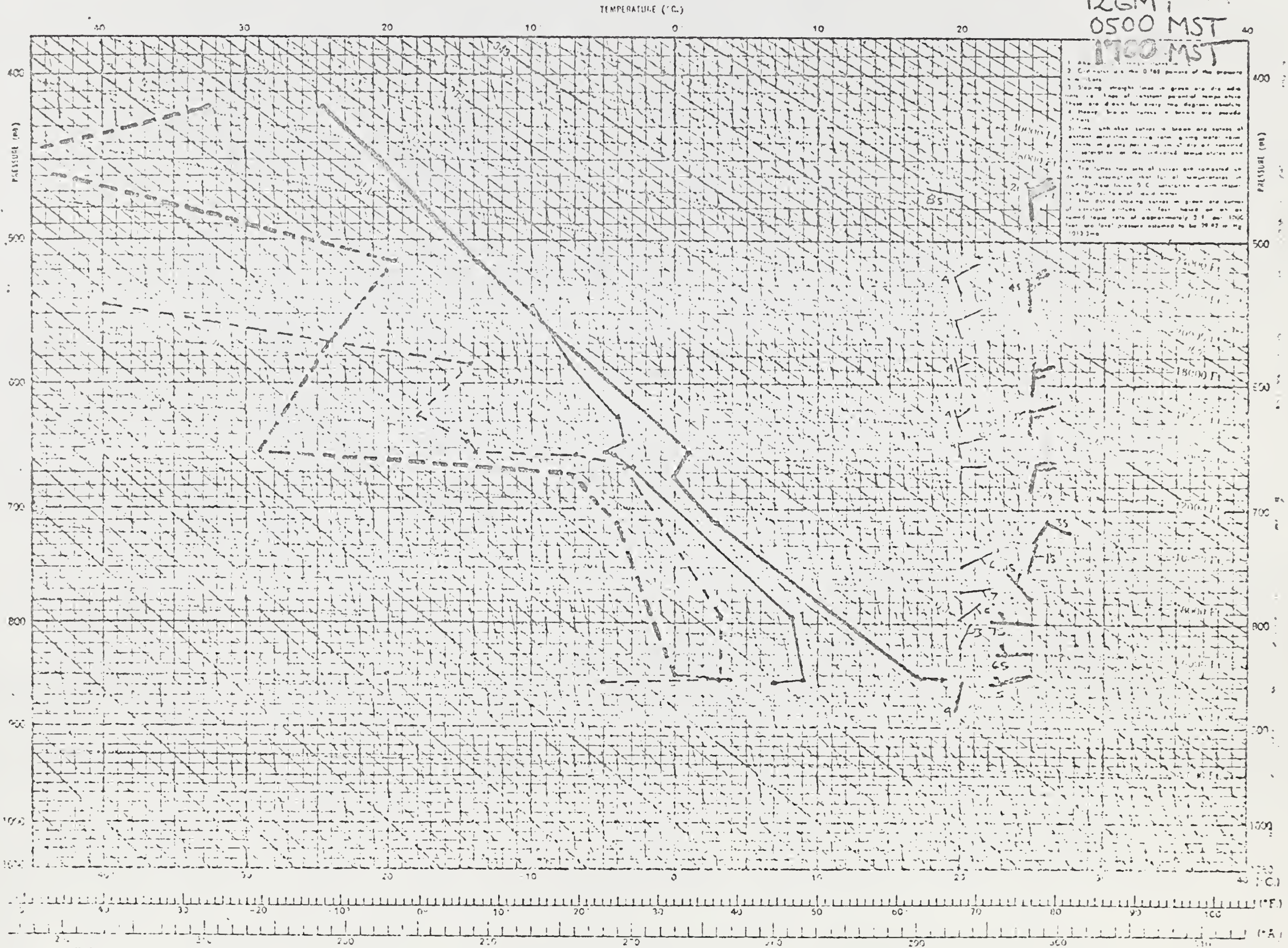
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE 10/13/74
STATION GJT
HOUR 12GMT
0500 MST
1700 MST



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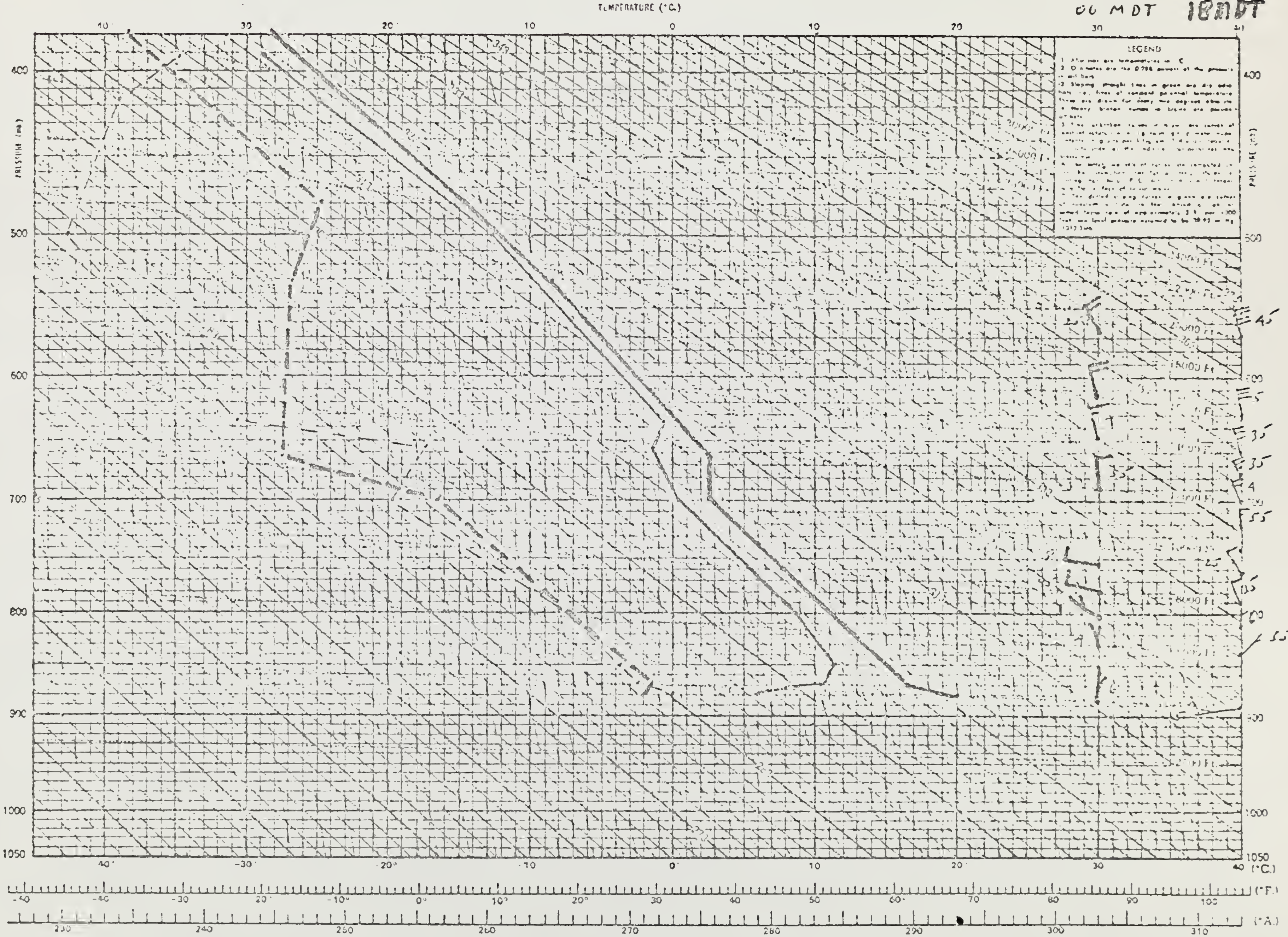
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 11, 1974
STATION SLC SLC
HOUR ... TH MERIDIAN ...
06 MDT 18 MDT



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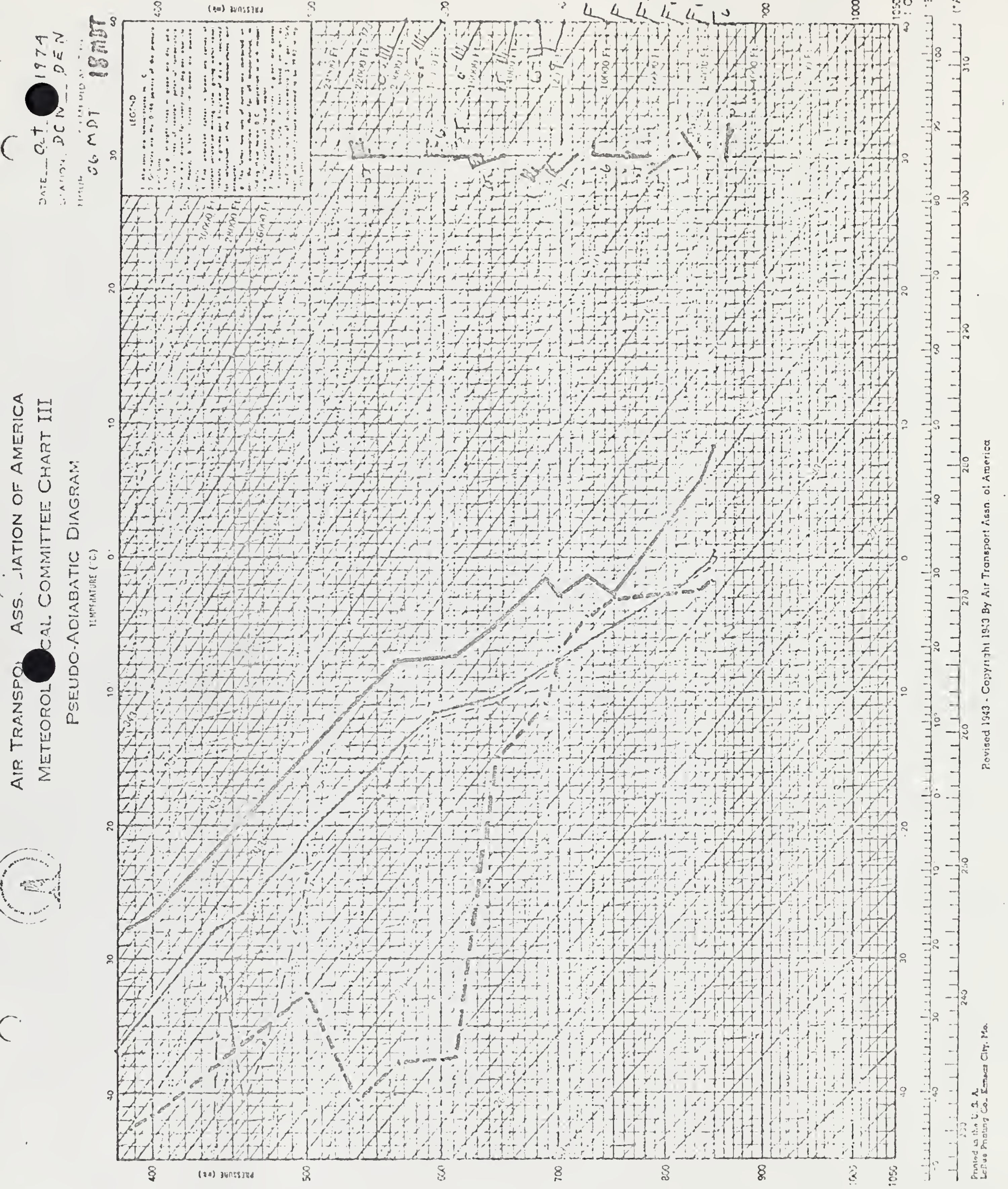
AIR TRANSPORT ASSOCIATION OF AMERICA
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM
TEMPERATURE (°C)
DATE Oct 1974
STATION DCN DEN
TIME 06 MDT 18MDT
LEGEND
PRESSURE (mb)
400
500
600
700
800
900
1000
1050
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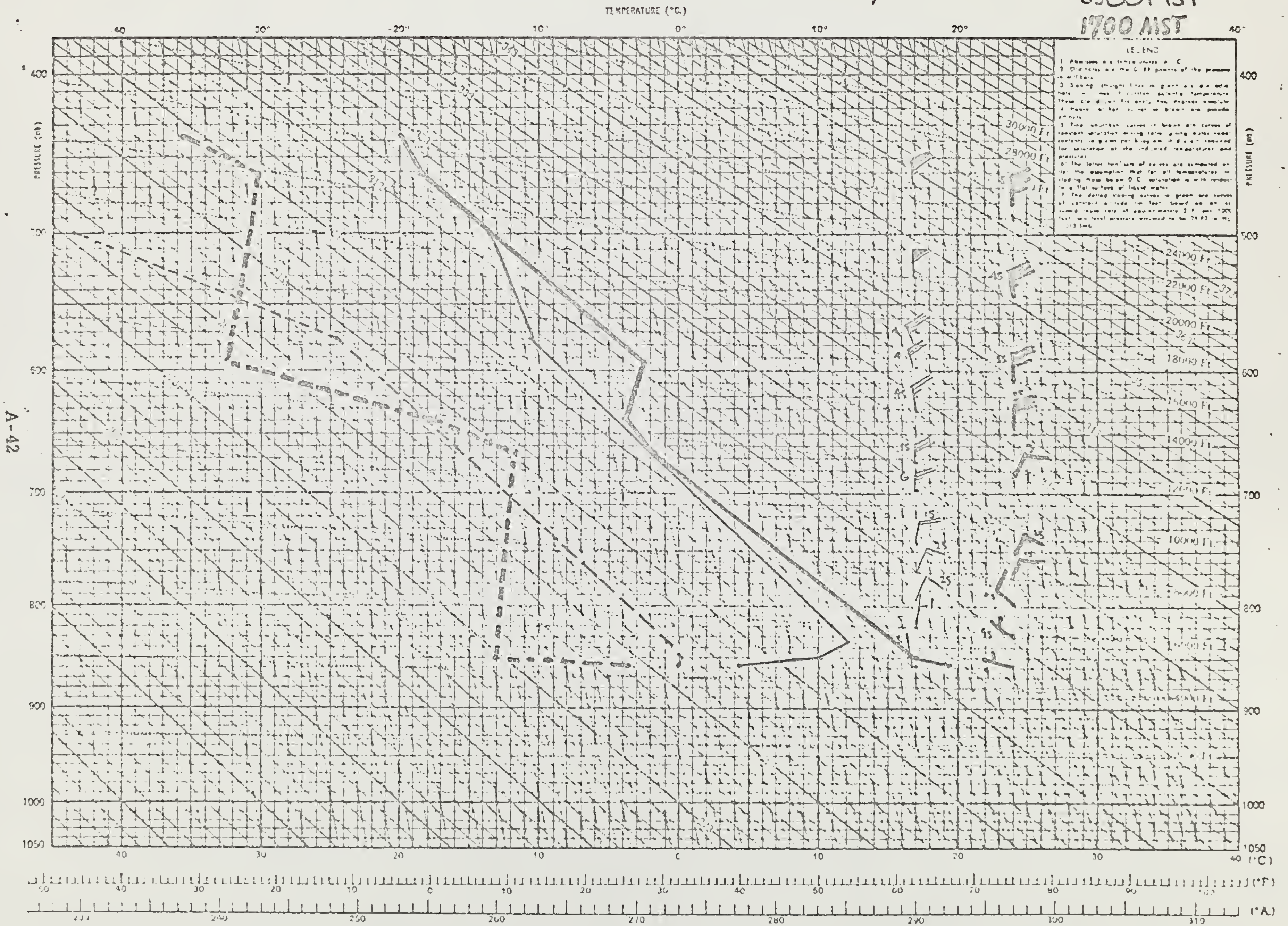
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE GJT
STATION 10/14/74
HOUR 0500 MST
1700 MST



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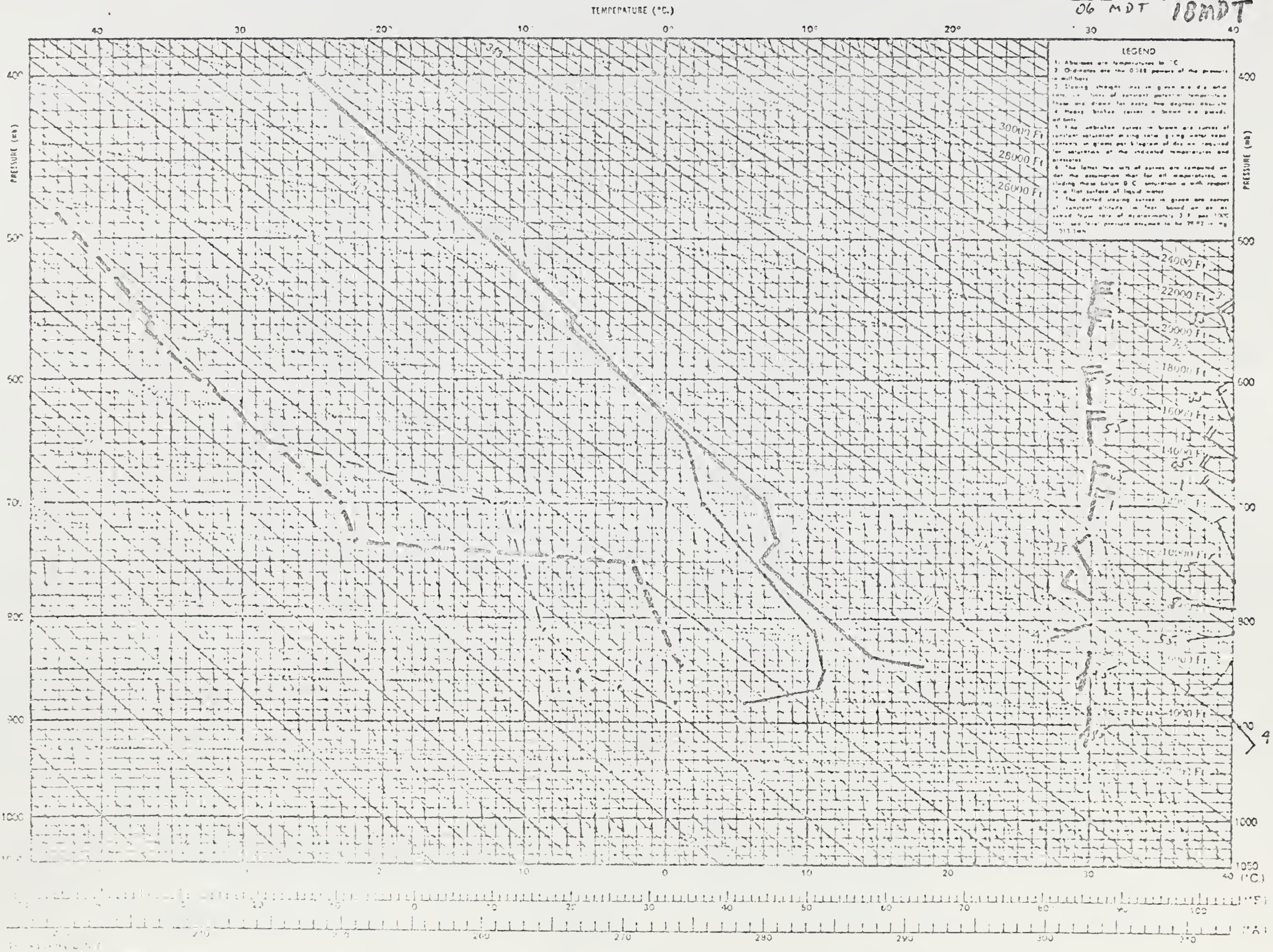
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 15, 1974
STATION SLC SLC
HOUR _ _TH MERIDIAN TIME 06 MDT 18MDT



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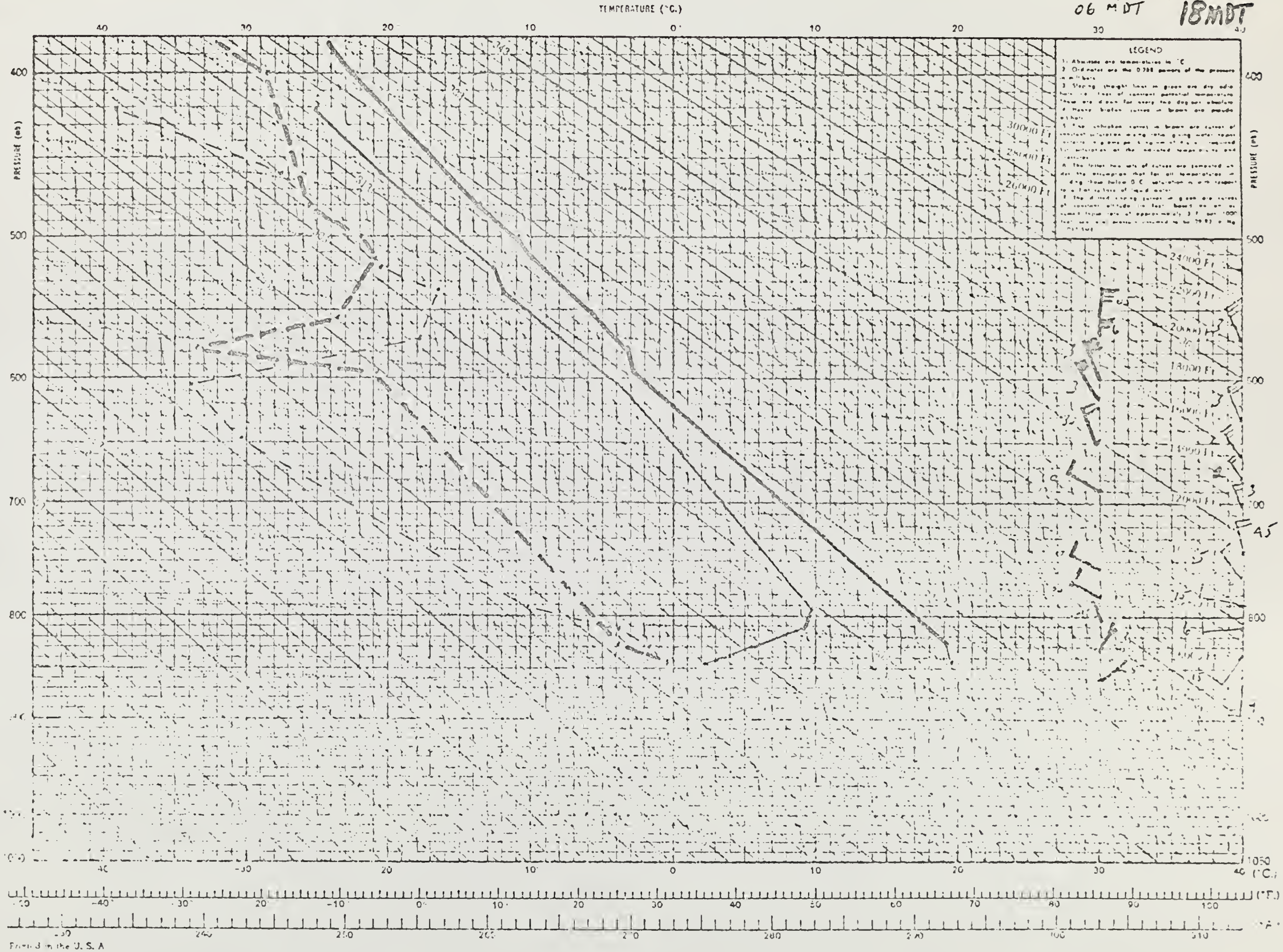
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE Oct 1974
STATION DEN DEN
HOUR ___TH MERIDIAN TIME 06 MDT 18MDT



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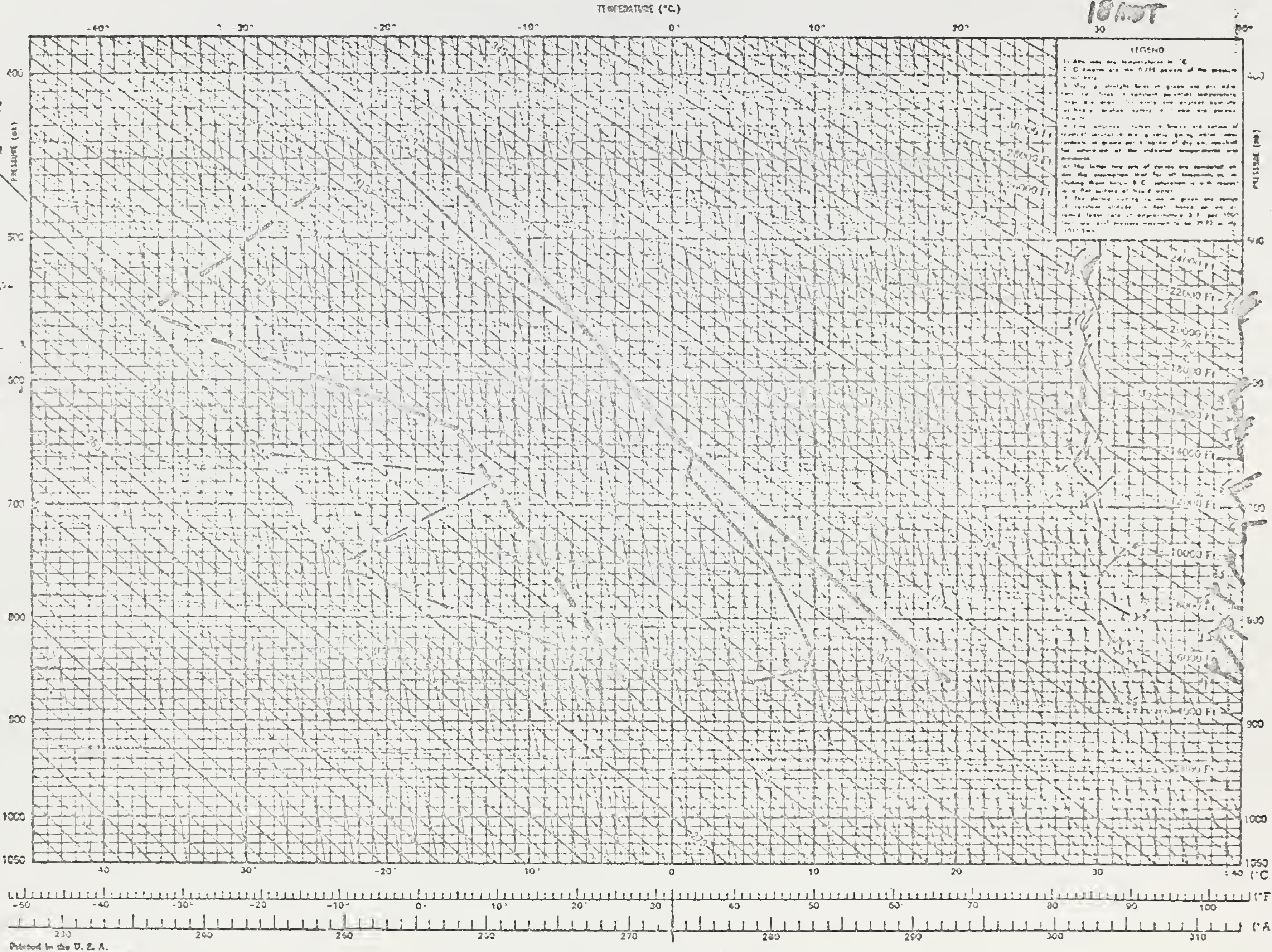
METEOROLOGICAL COMMITTEE CHART III
PSEUDO-ADIABATIC DIAGRAM

DATE OCT 15, 1974
STATION GJT
HOUR [illegible] MERIDIAN TIME
18 MDT



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APPENDIX B

Vertical Temperature Profile Comparisons Between Federal Oil Shale Tracts C-a and C-b During the Period 1 October through 15 October 1974

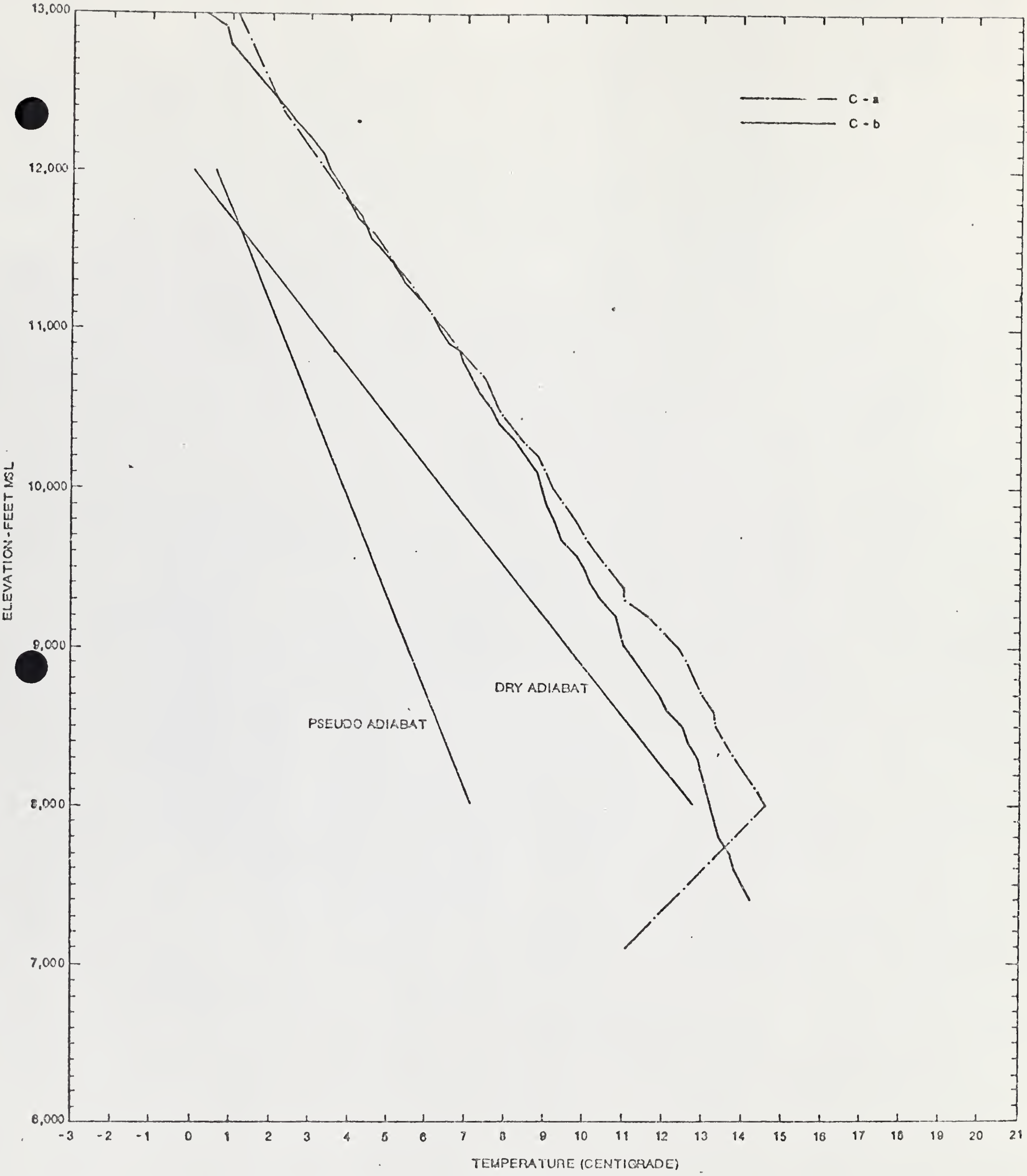


Figure B-1. Comparison of Vertical Temperature Soundings Made at 0400 on 1 October 1974 Over Tracts C-a and C-b

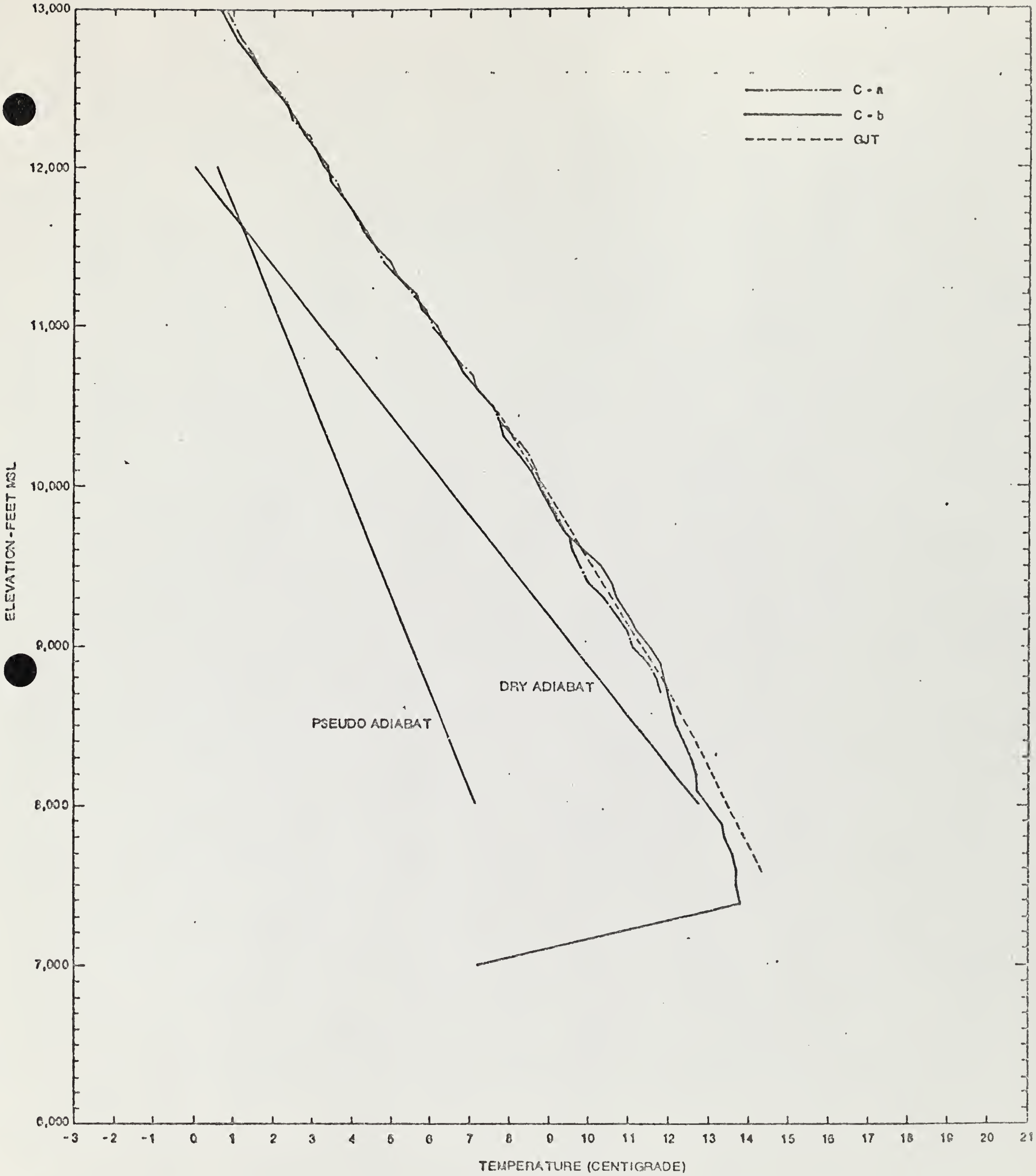


Figure B-2. Comparison of Vertical Temperature Soundings Made at 0700 on 1 October 1974 Over Tracts C-a and C-b

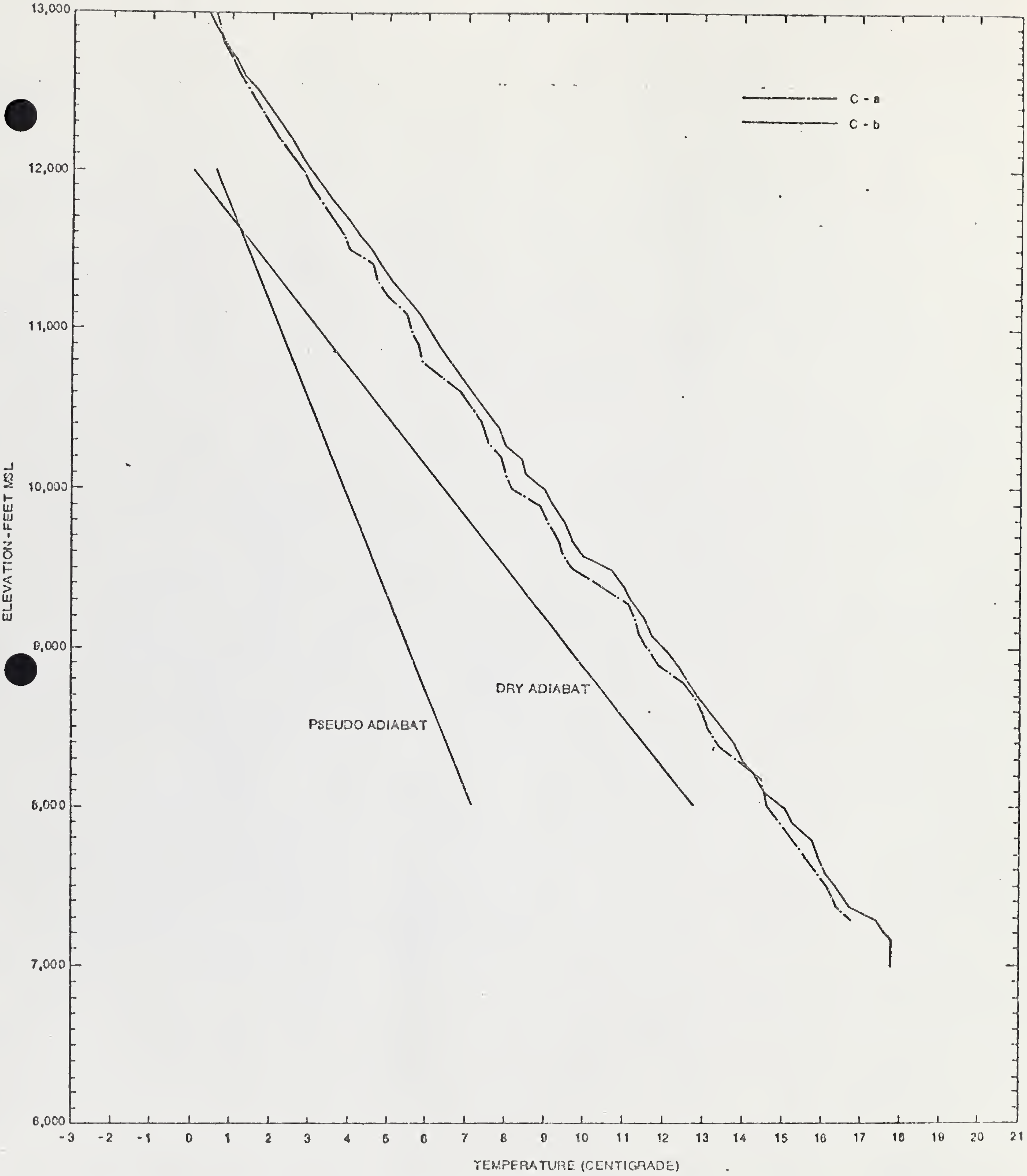


Figure B-3. Comparison of Vertical Temperature Soundings Made at 1100 on 1 October 1974 for C-a and C-b

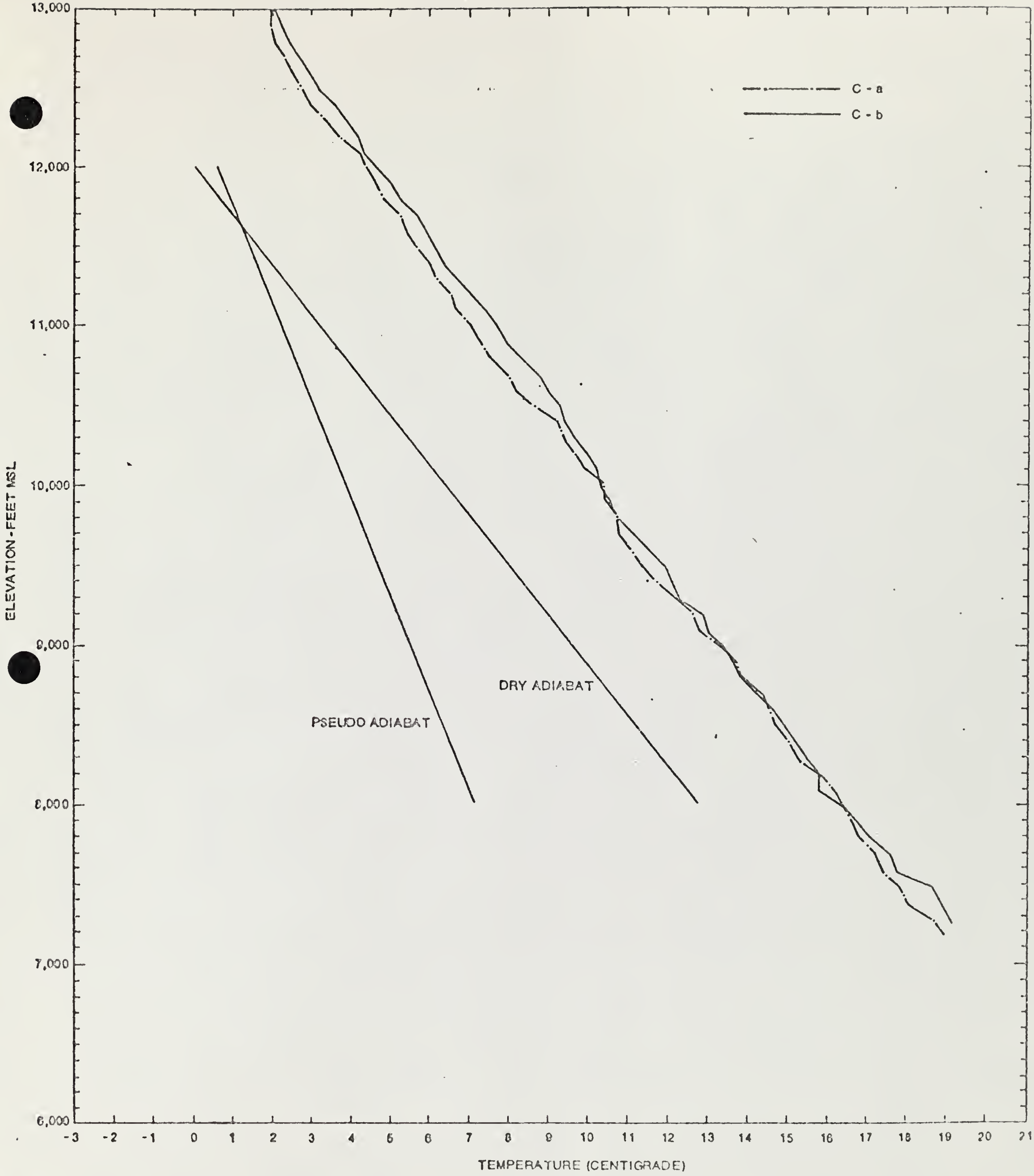


Figure B-4. Comparison of Vertical Temperature Soundings Made at 1600 on 1 October 1974 for Tracts C-a and C-b

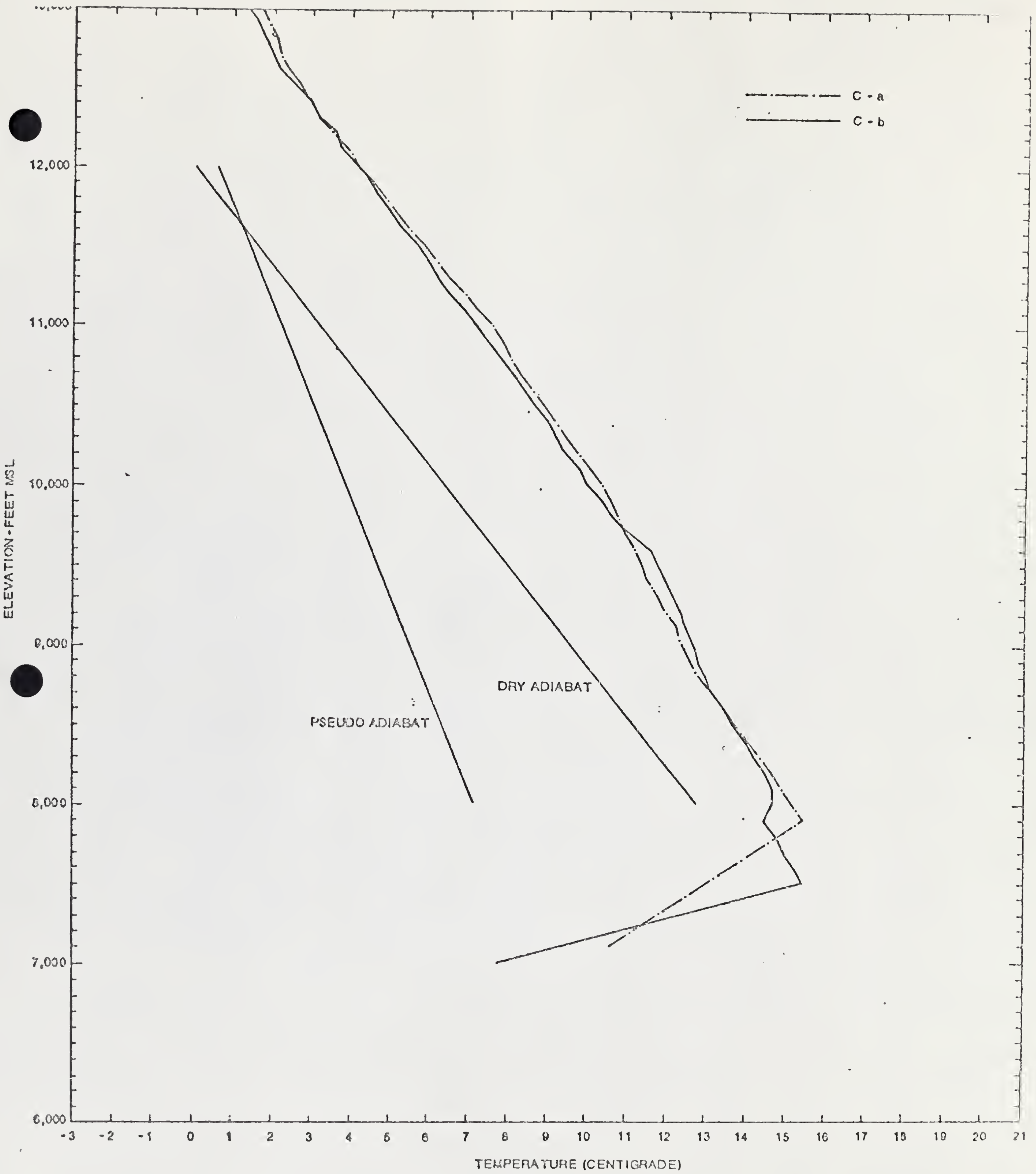


Figure B-5. Comparison of Vertical Temperature Soundings Made at 0400 on 2 October 1974 for Tracts C-a and C-b

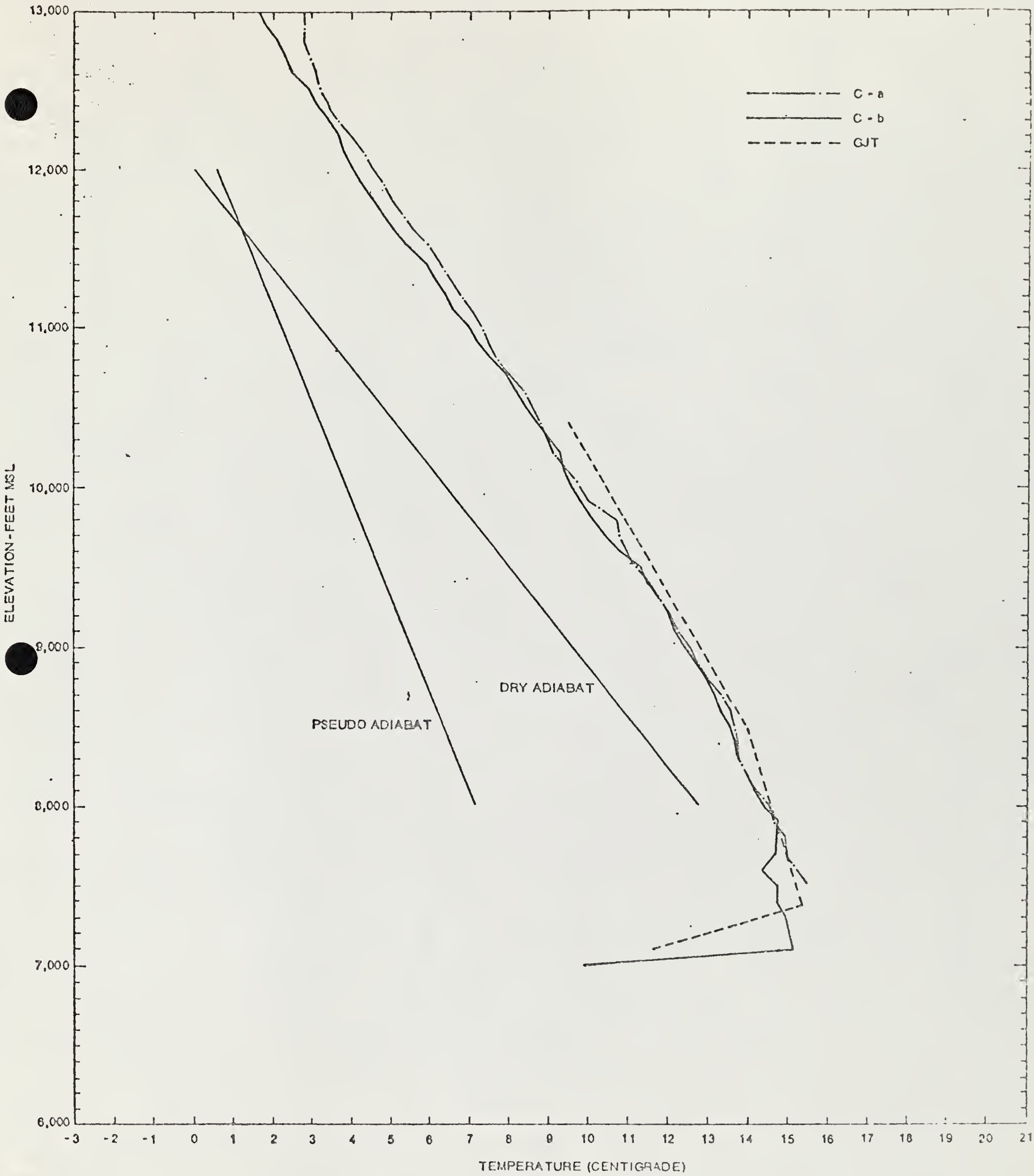


Figure B-6. Comparison of Vertical Temperature Soundings Made at 0700 on 2 October 1974 for Tracts C-a and C-b

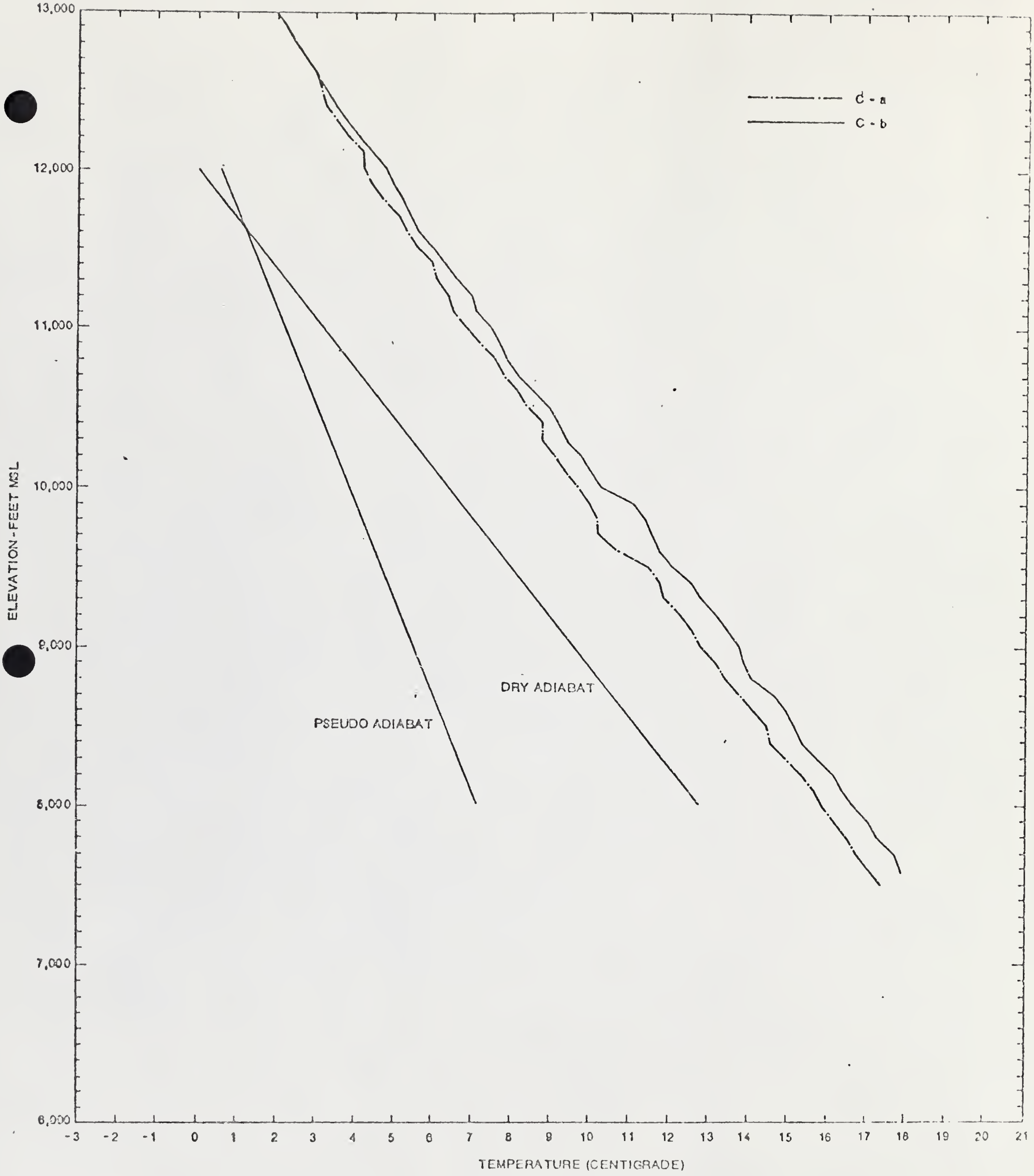


Figure B-7. Comparison of Vertical Temperature Soundings Made at 1100 on 2 October 1974 for Tracts C-a and C-b

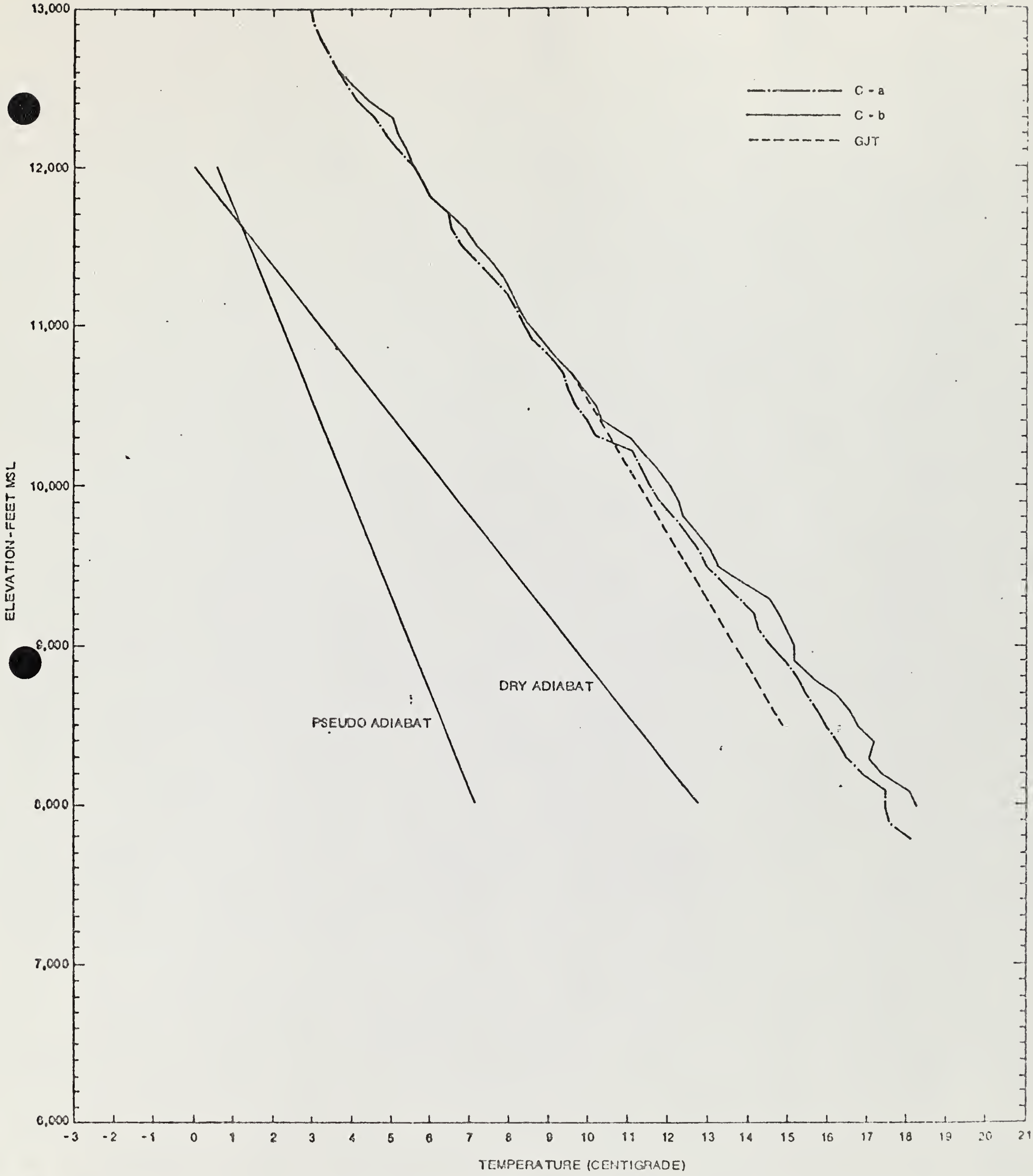


Figure B-8. Comparison of Vertical Temperature Soundings Made at 1600 on 2 October 1974 for Tracts C-a and C-b

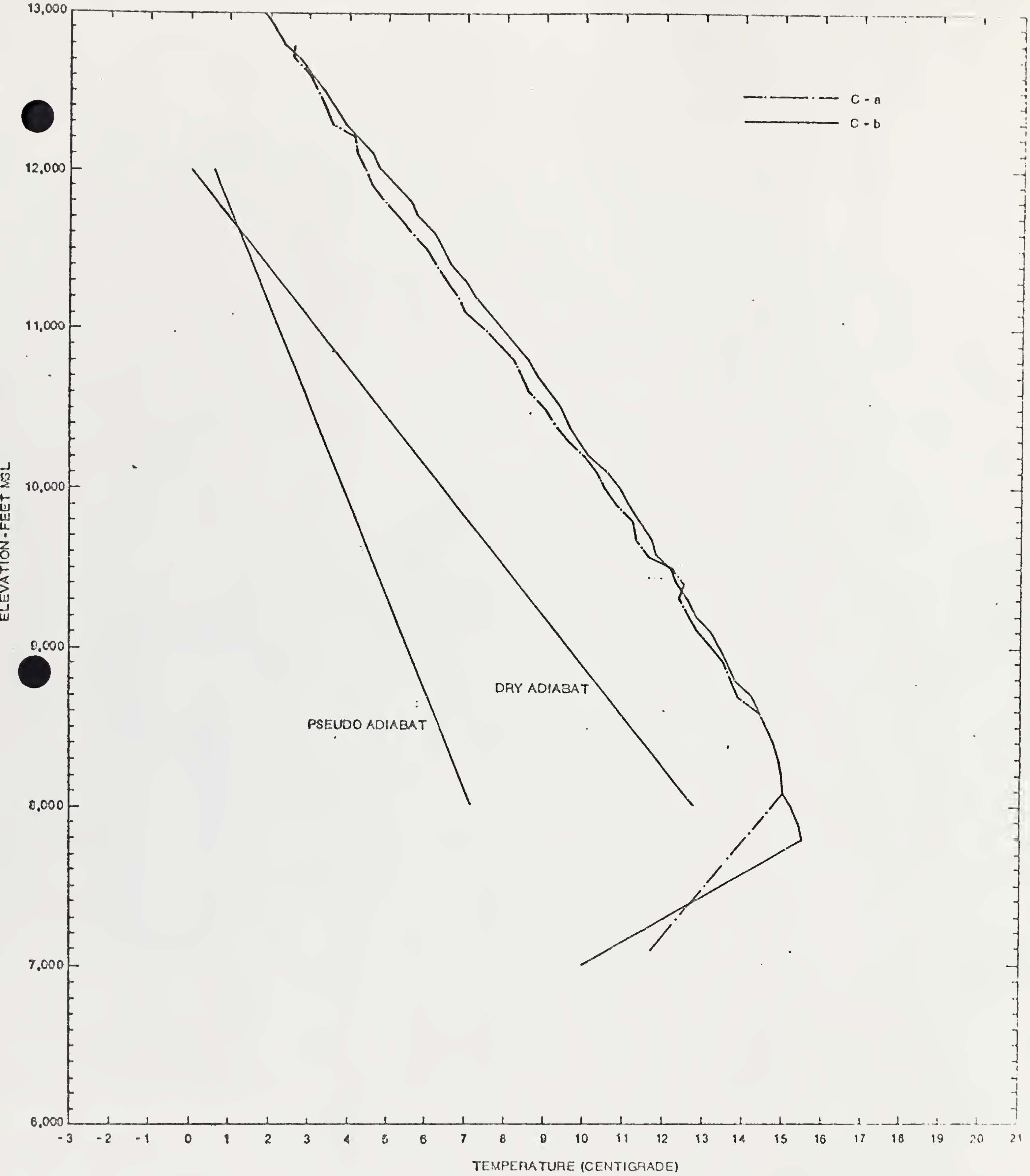


Figure B-9. Comparison of Vertical Temperature Soundings Made at 0400 on 3 October 1974 for Tracts C-a and C-b

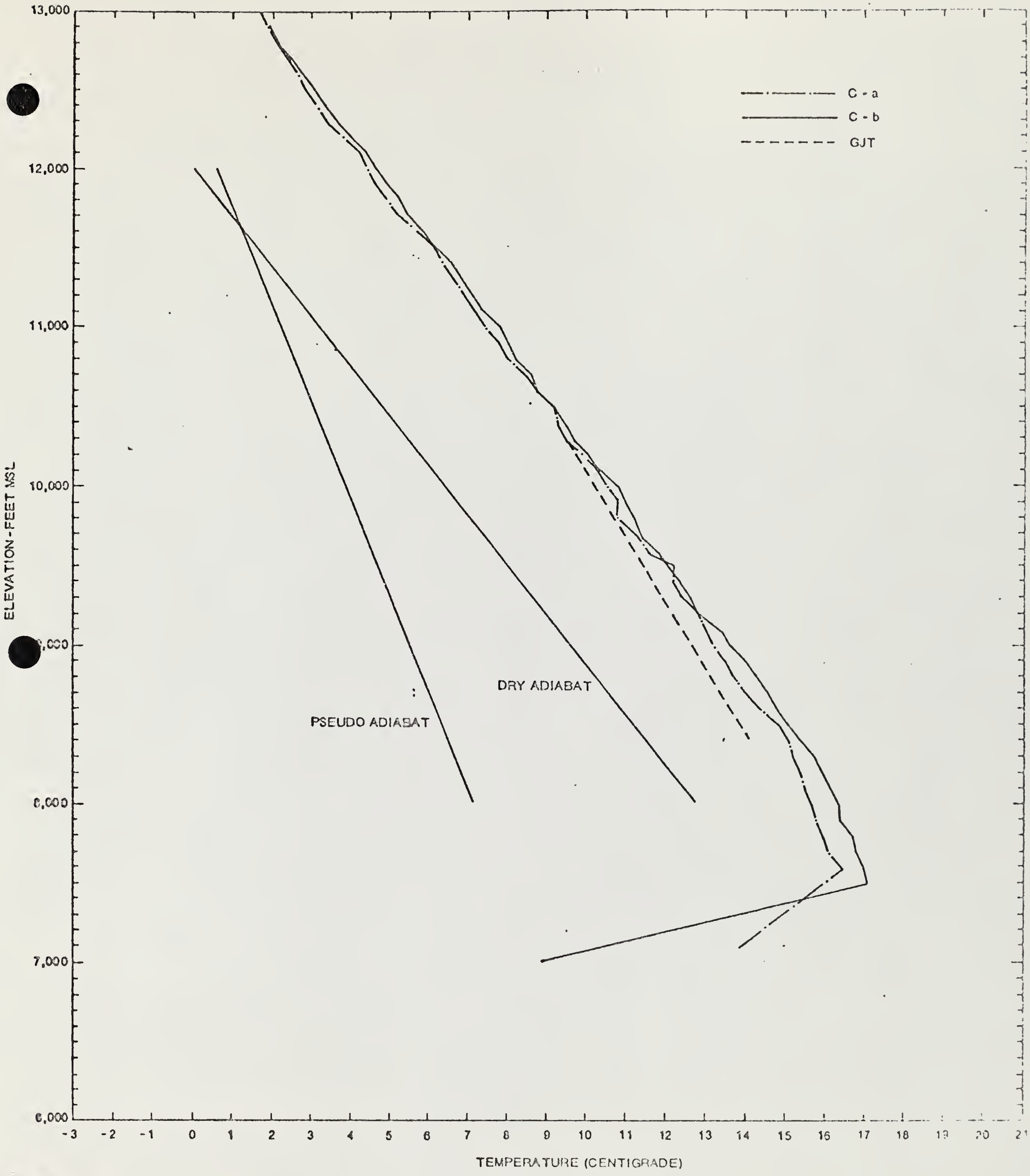


Figure B-10. Comparison of Vertical Temperature Soundings Made at 0700 on 3 October 1974 for Tracts C-a and C-b

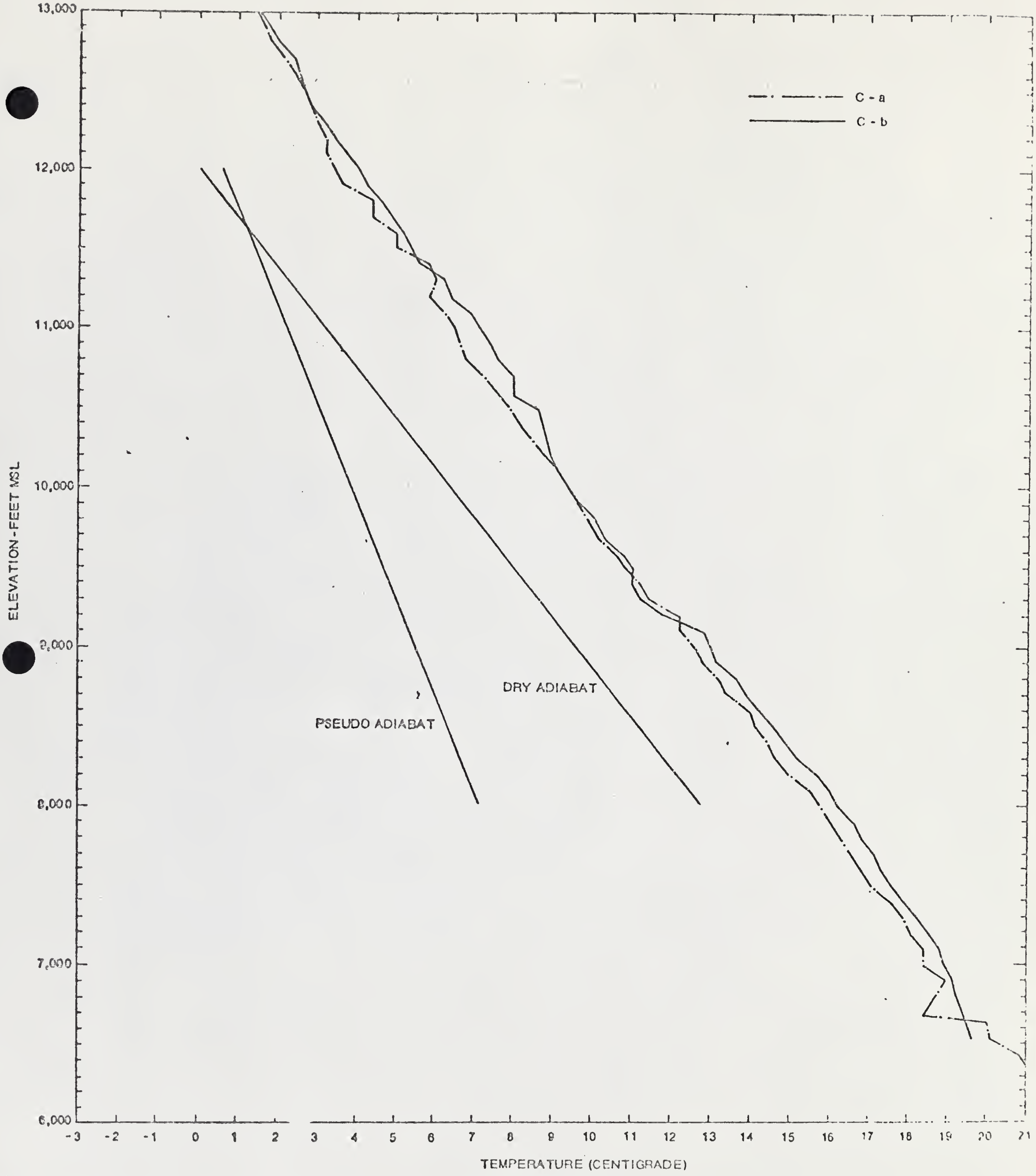


Figure B-11. Comparison of Vertical Temperature Soundings Made at 1100 on 3 October 1974 for Tracts C-a and C-b

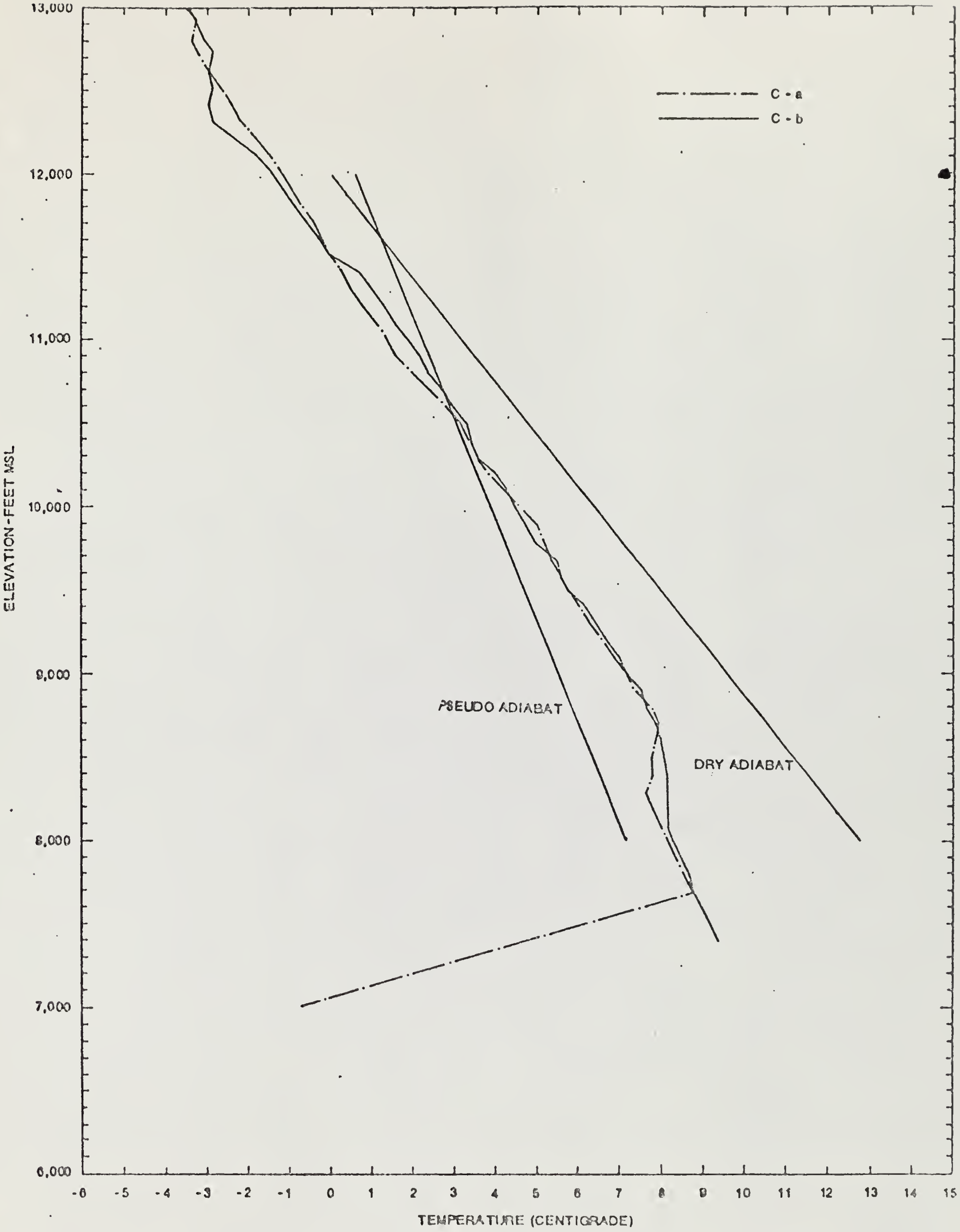


Figure B-12. Comparison of Vertical Temperature Soundings Made at 0500 on 7 October 1974 for Tracts C-a and C-b

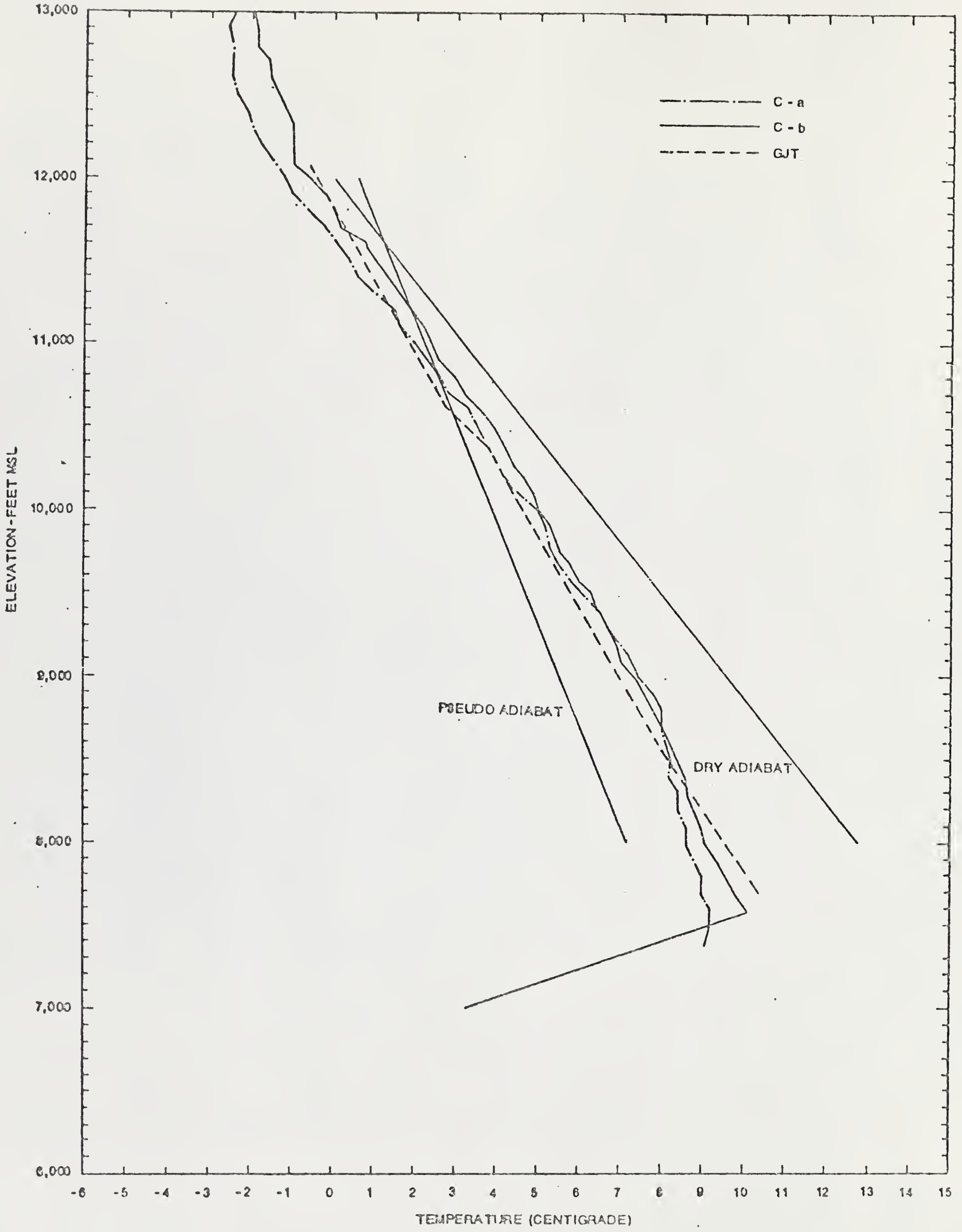


Figure B-13. Comparison of Vertical Temperature Soundings Made at 0800 on 7 October 1974 for Tracts C-a and C-b

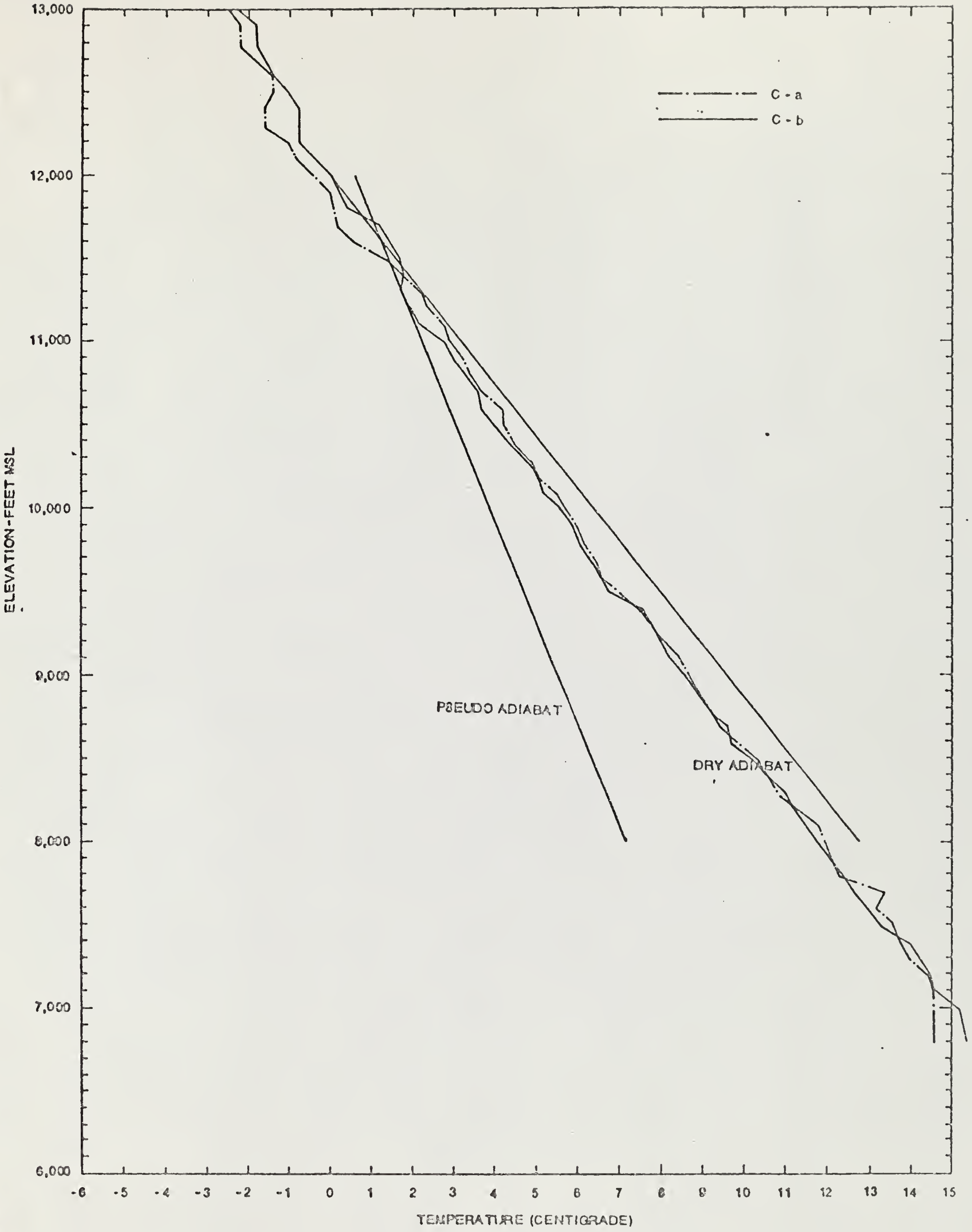


Figure B-14. Comparison of Vertical Temperature Soundings Made at 1200 on 7 October 1974 for Tracts C-a and C-b

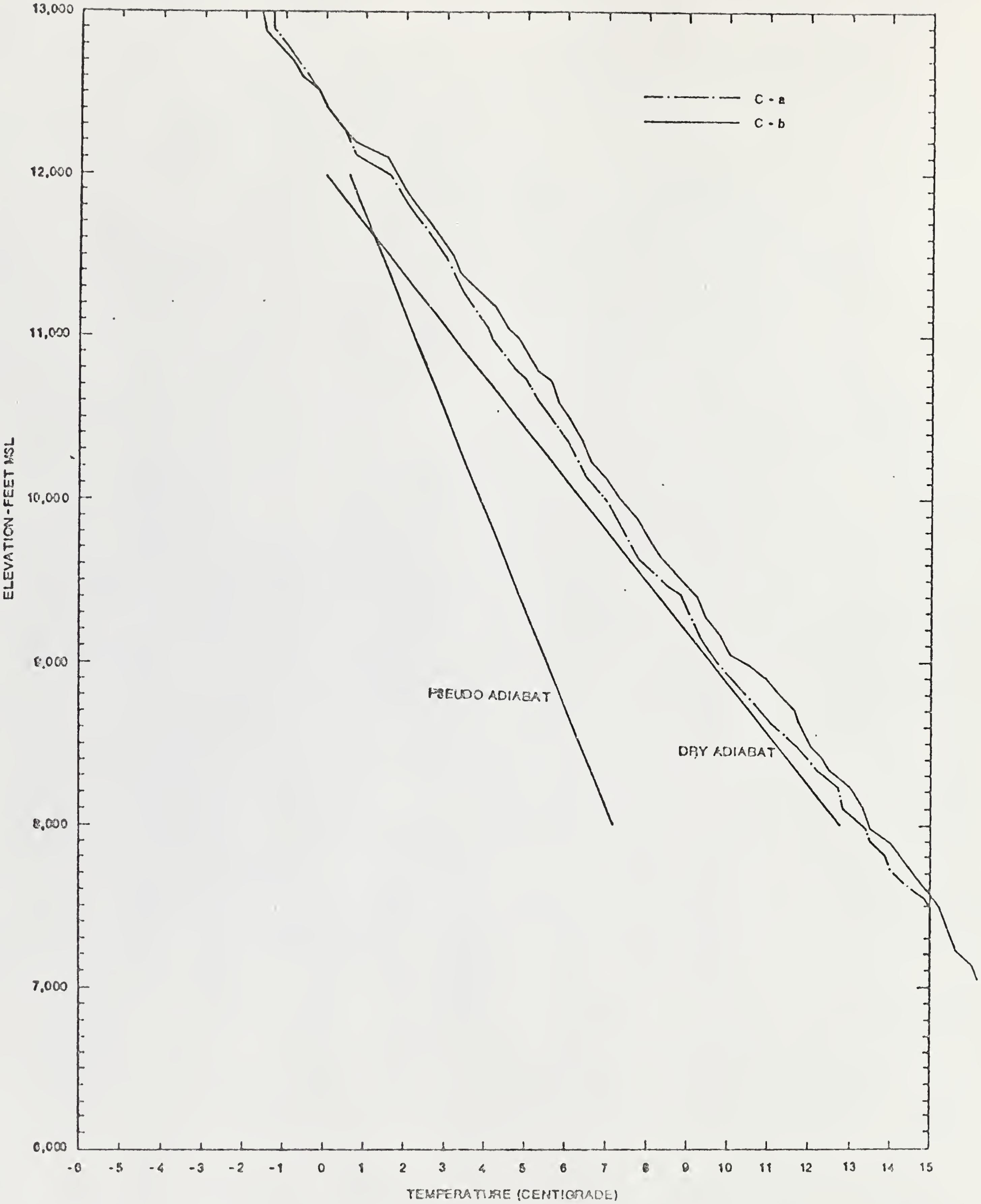


Figure B-15. Comparison of Vertical Temperature Soundings Made at 1700 on 7 October 1974 for Tracts C-a and C-b

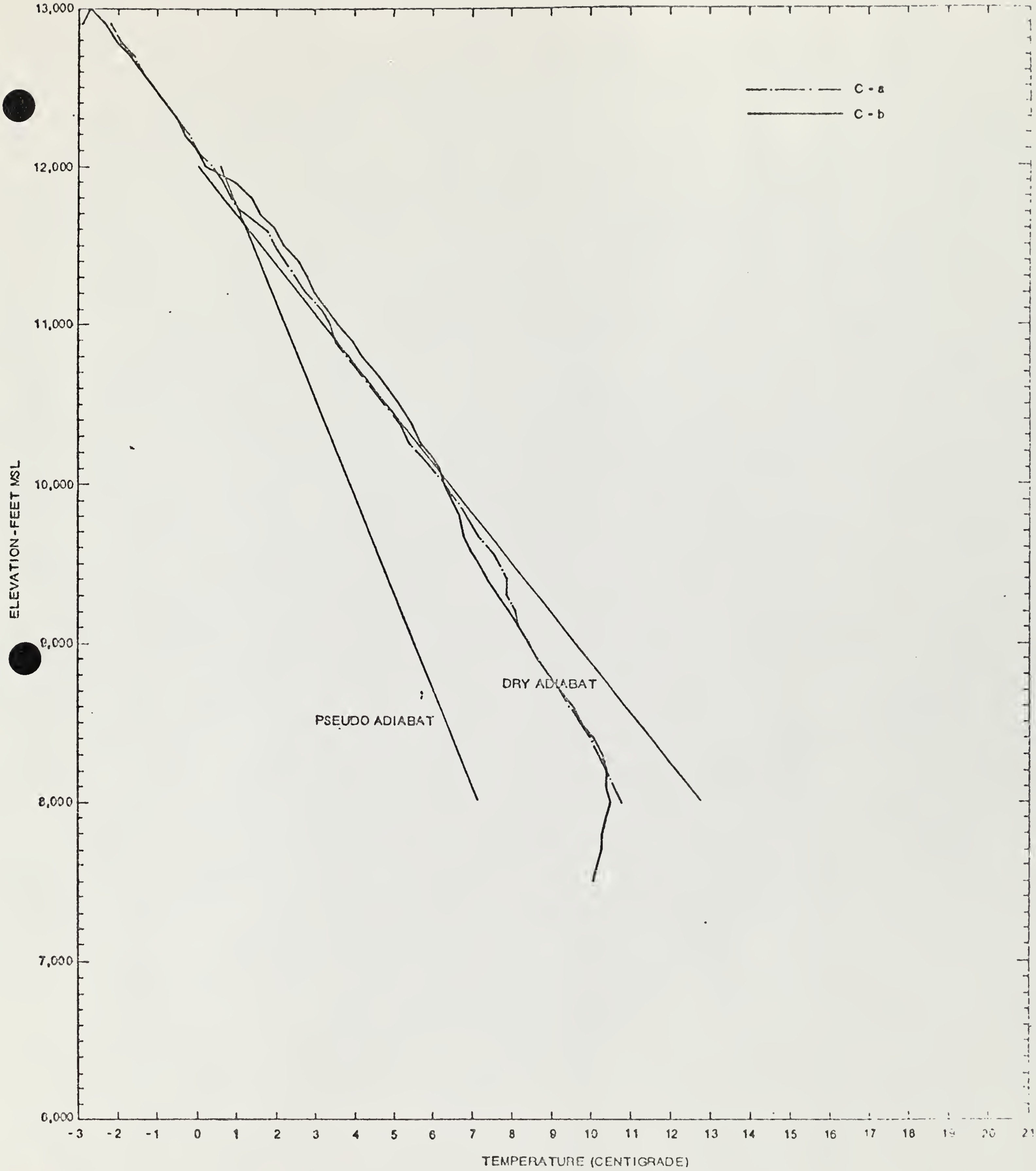


Figure B-16. Comparison of Vertical Temperature Soundings Made at 0500 on 8 October 1974 for Tracts C-a and C-b

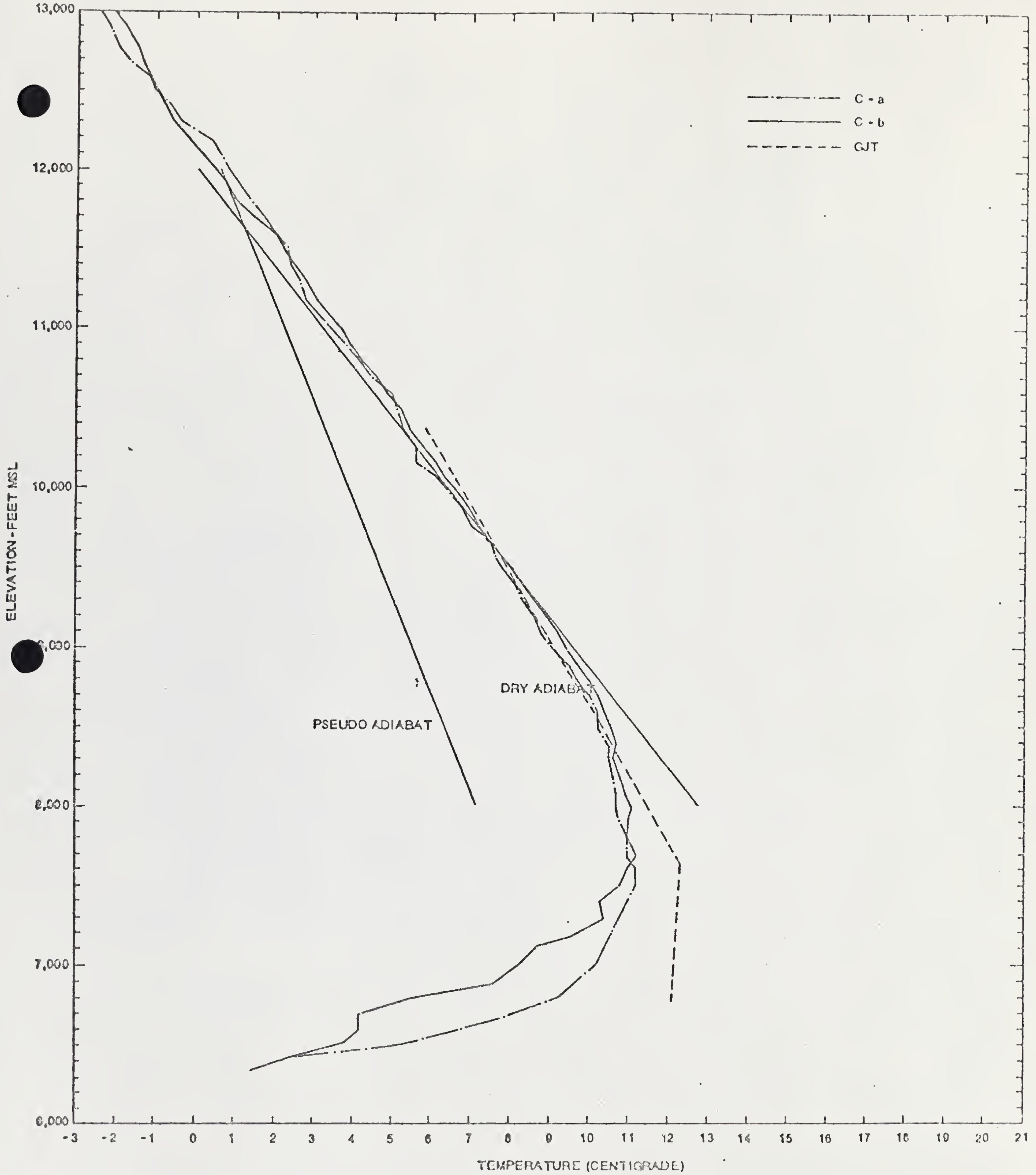


Figure B-17. Comparison of Vertical Temperature Soundings Made at 0800 on 8 October 1974 for Tracts C-a and C-b

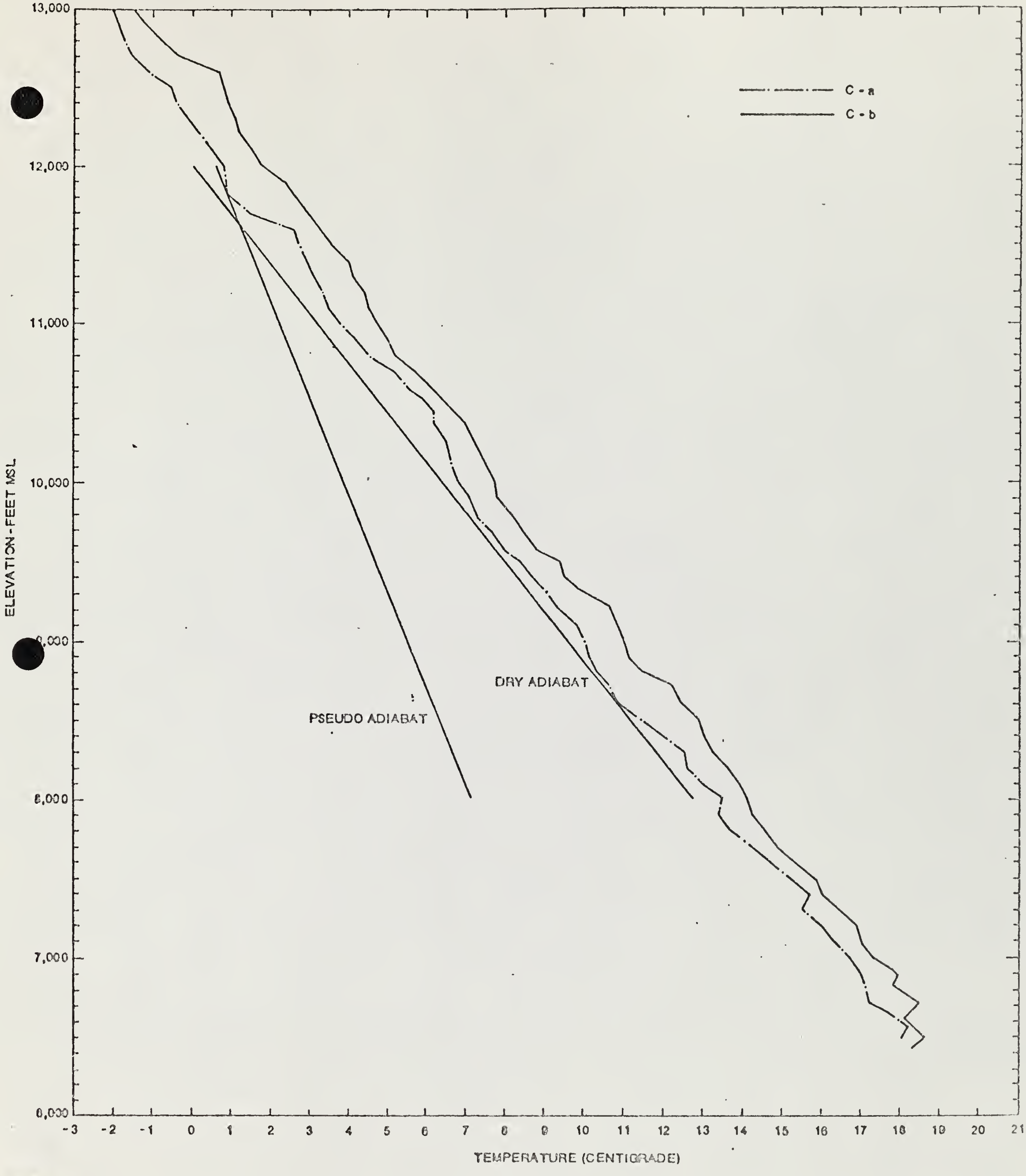


Figure B-18. Comparison of Vertical Temperature Soundings Made at 1200 on 8 October 1974 for Tracts C-a and C-b

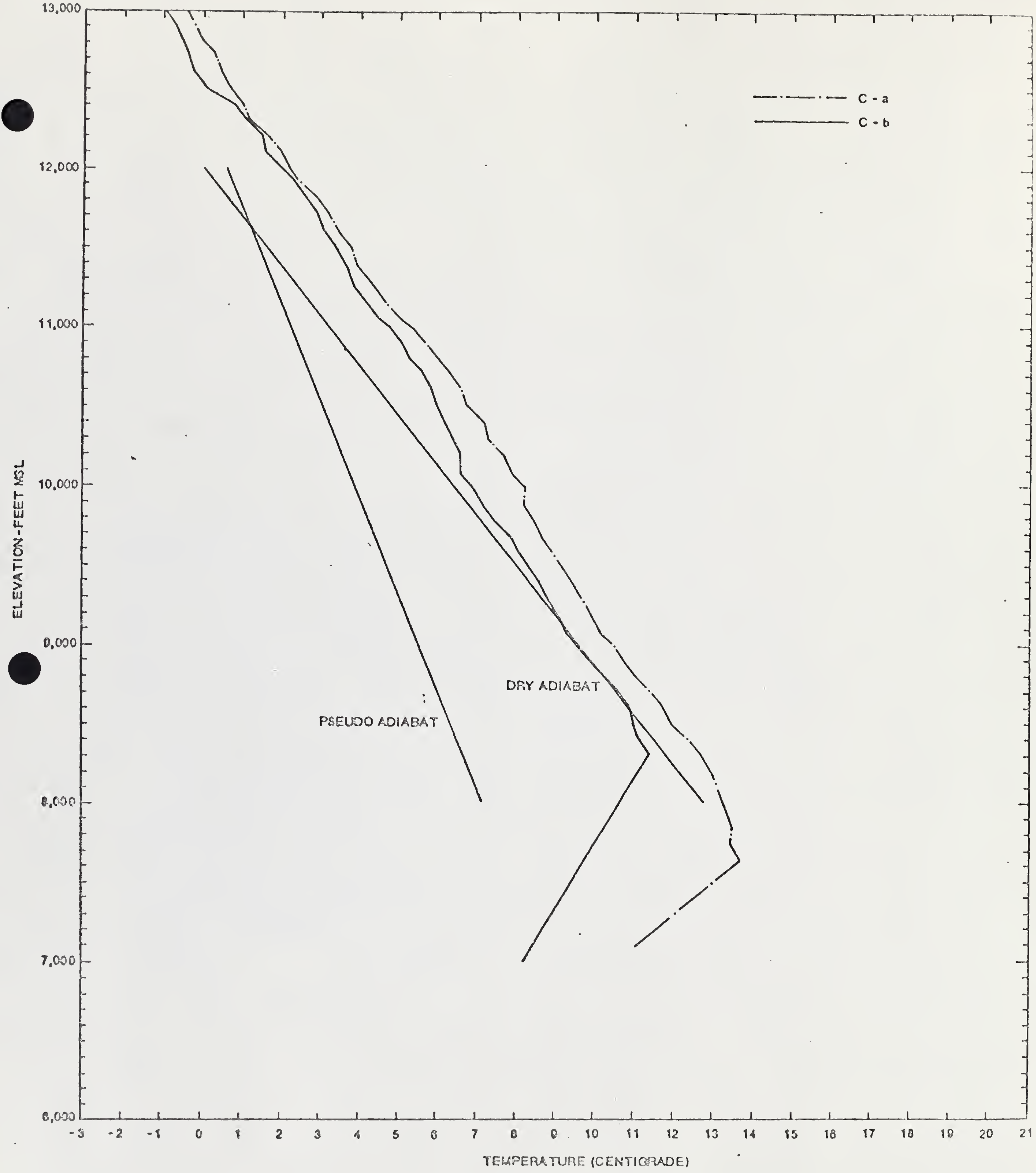


Figure B-19. Comparison of Vertical Temperature Soundings Made at 0500 on 9 October 1974 for Tracts C-a and C-b

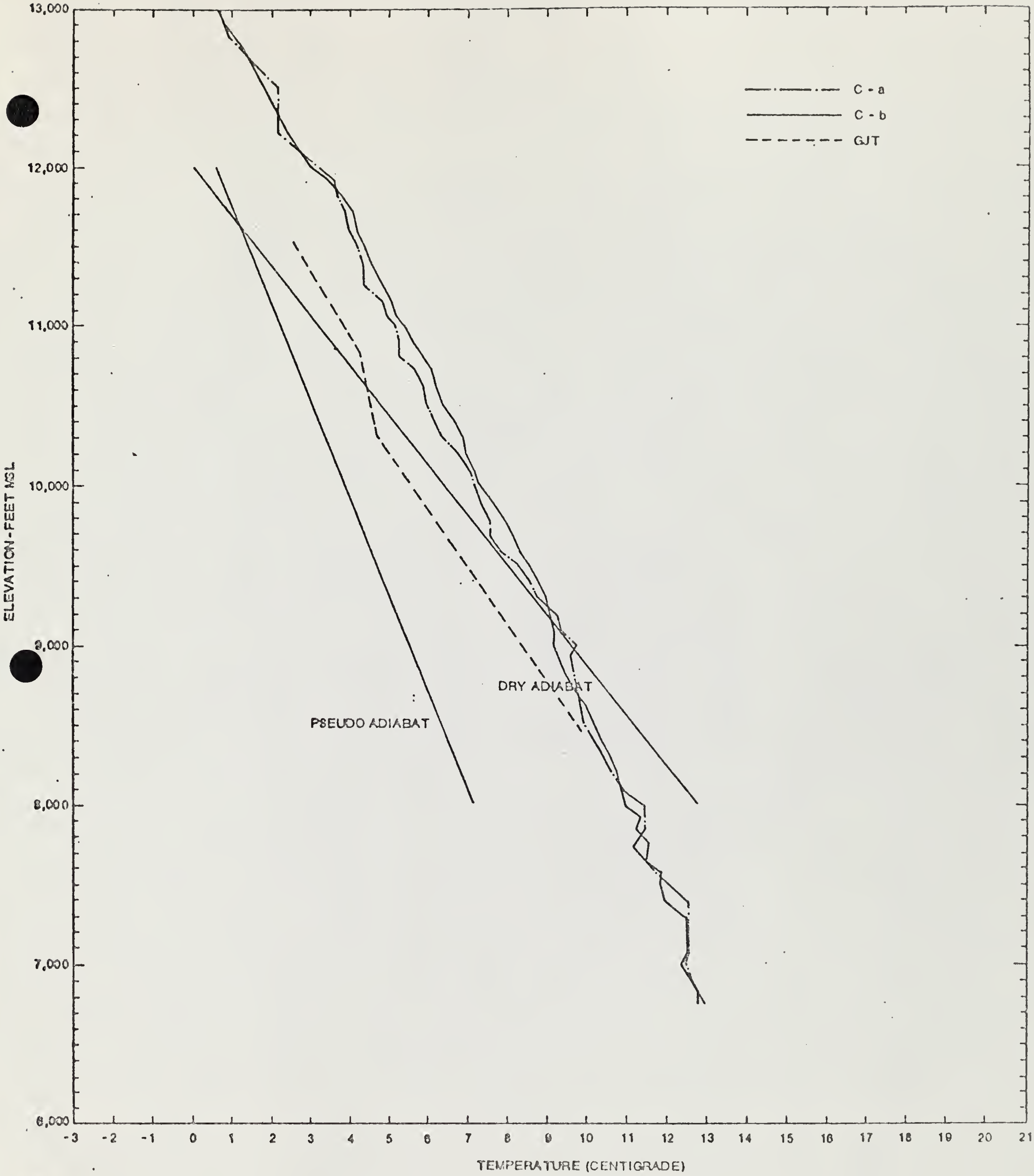


Figure B-20. Comparison of Vertical Temperature Soundings Made at 0800 on 9 October 1974 for Tracts C-a and C-b

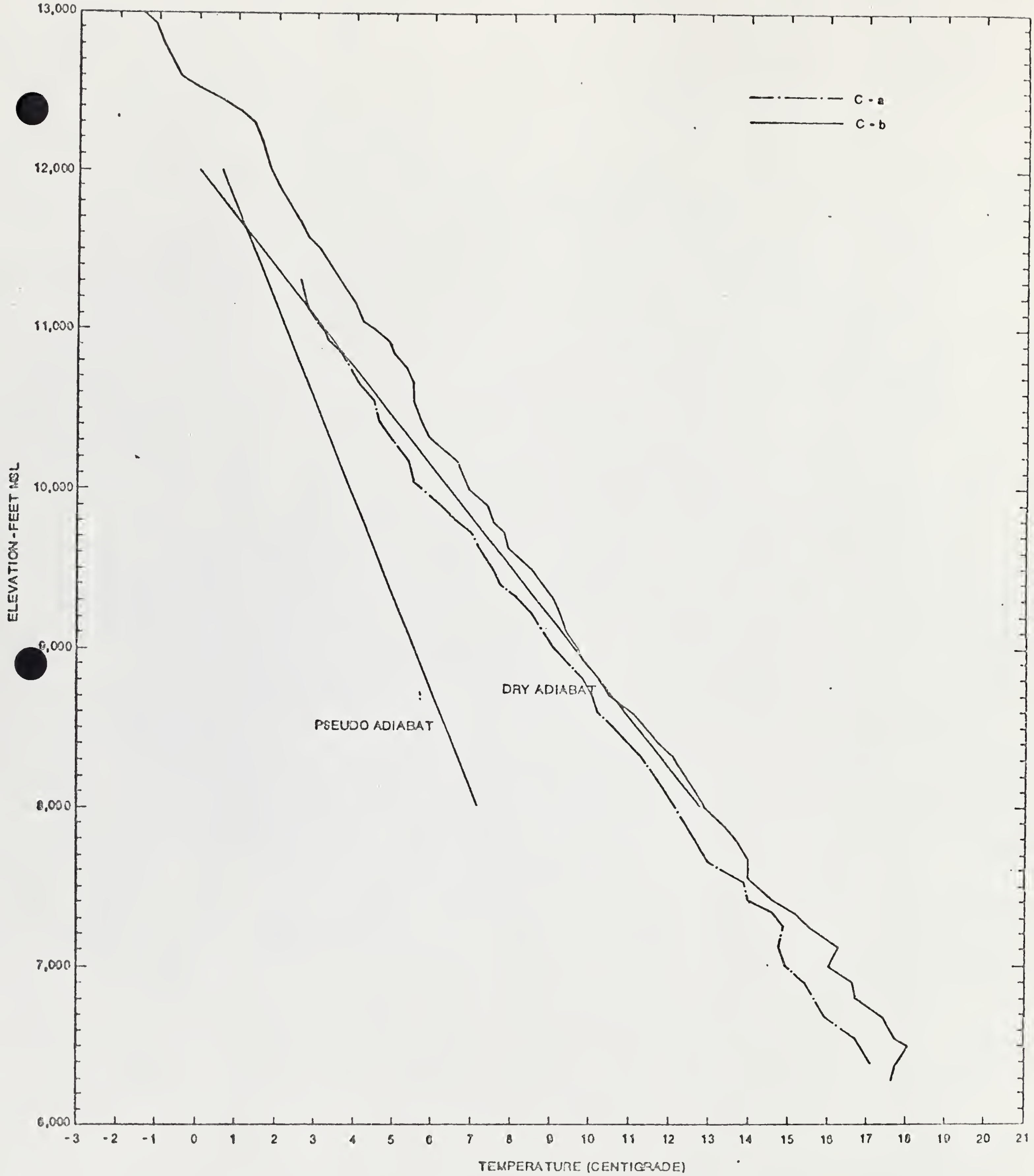


Figure B-21. Comparison of Vertical Temperature Soundings Made at 1200 on 9 October 1974 for Tracts C-a and C-b

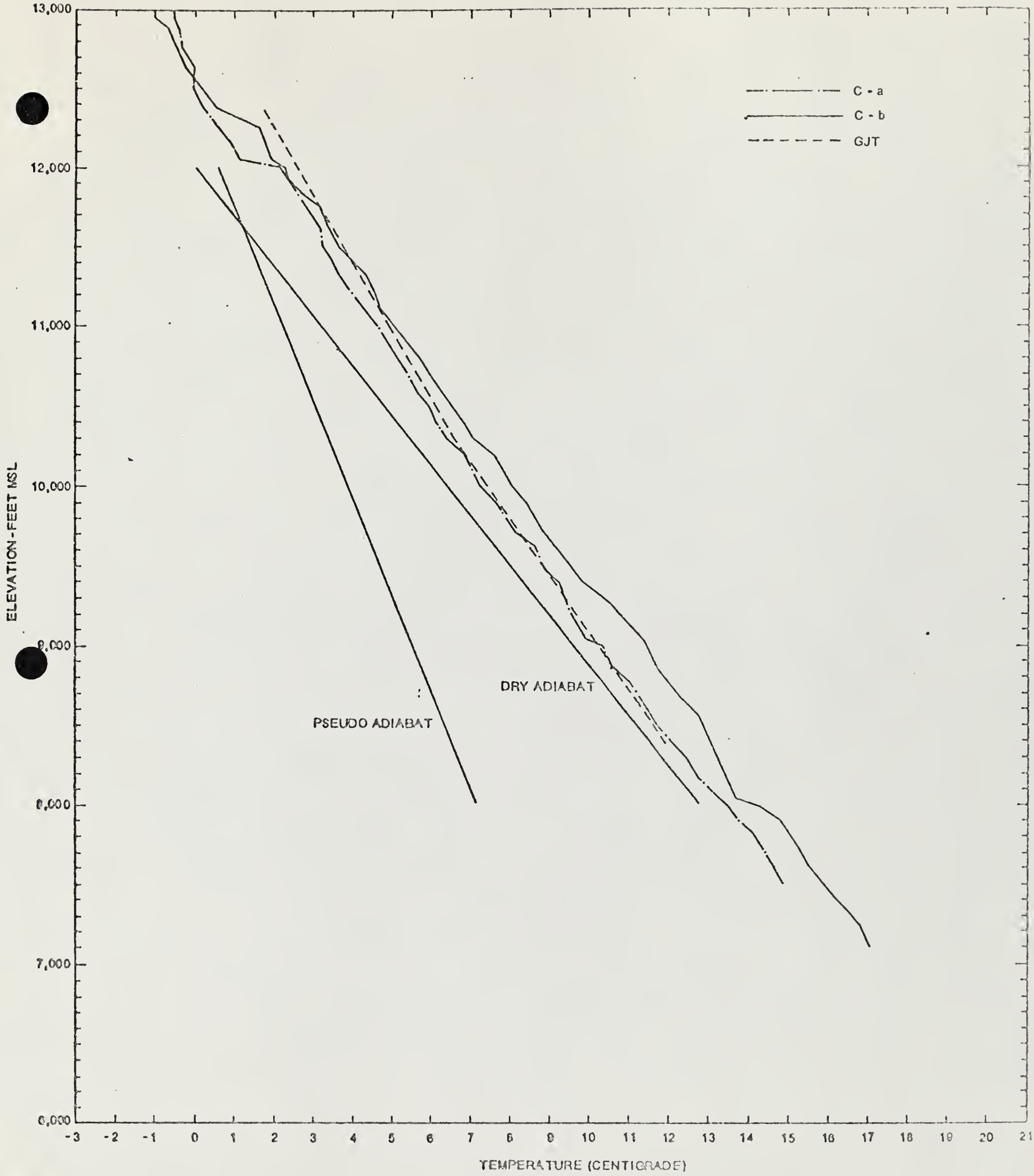


Figure B-22. Comparison of Vertical Temperature Soundings Made at 1700 on 9 October 1974 for Tracts C-a and C-b

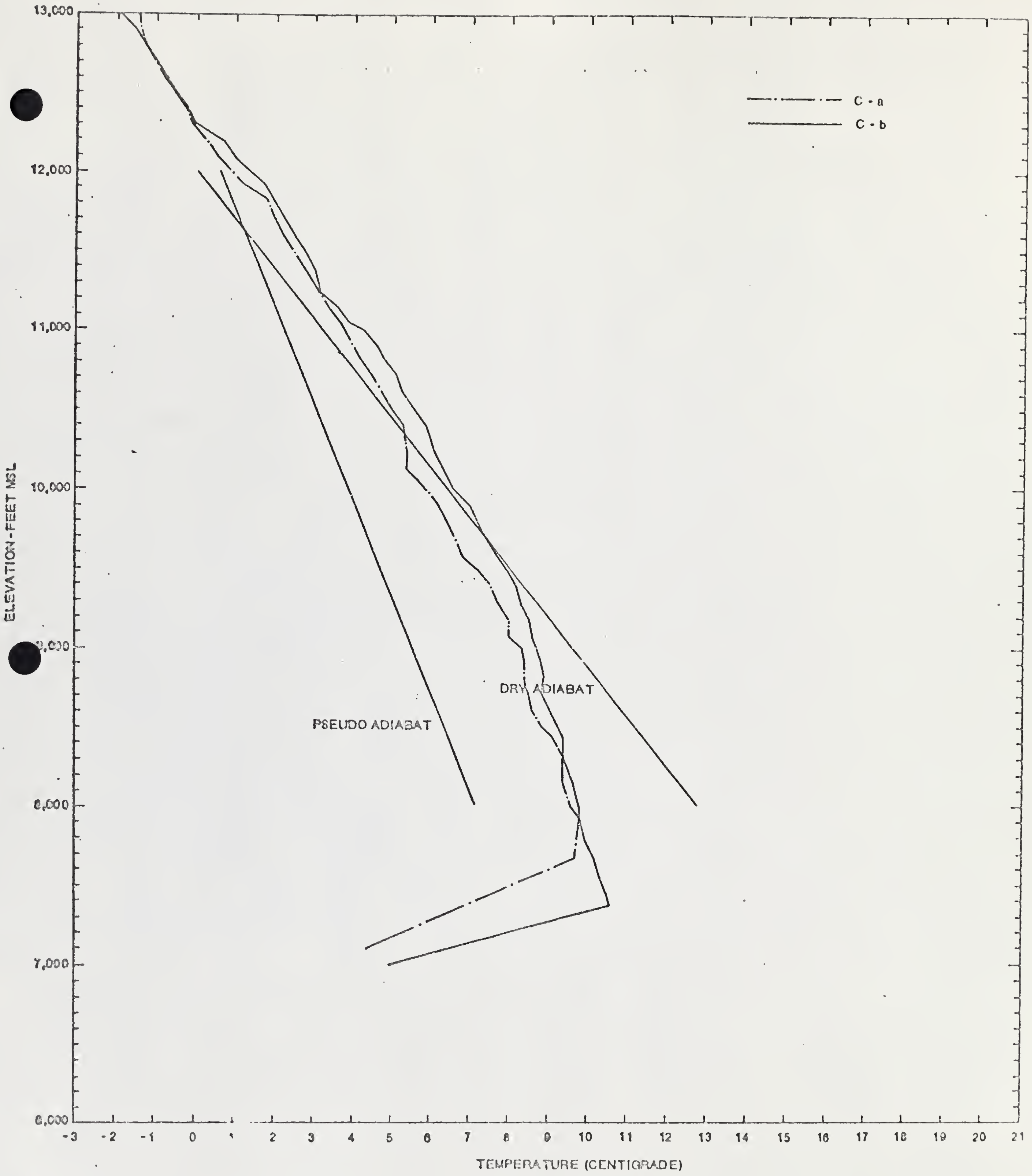


Figure B-23. Comparison of Vertical Temperature Soundings Made at 0500 on 10 October 1974 for Tracts C-a and C-b

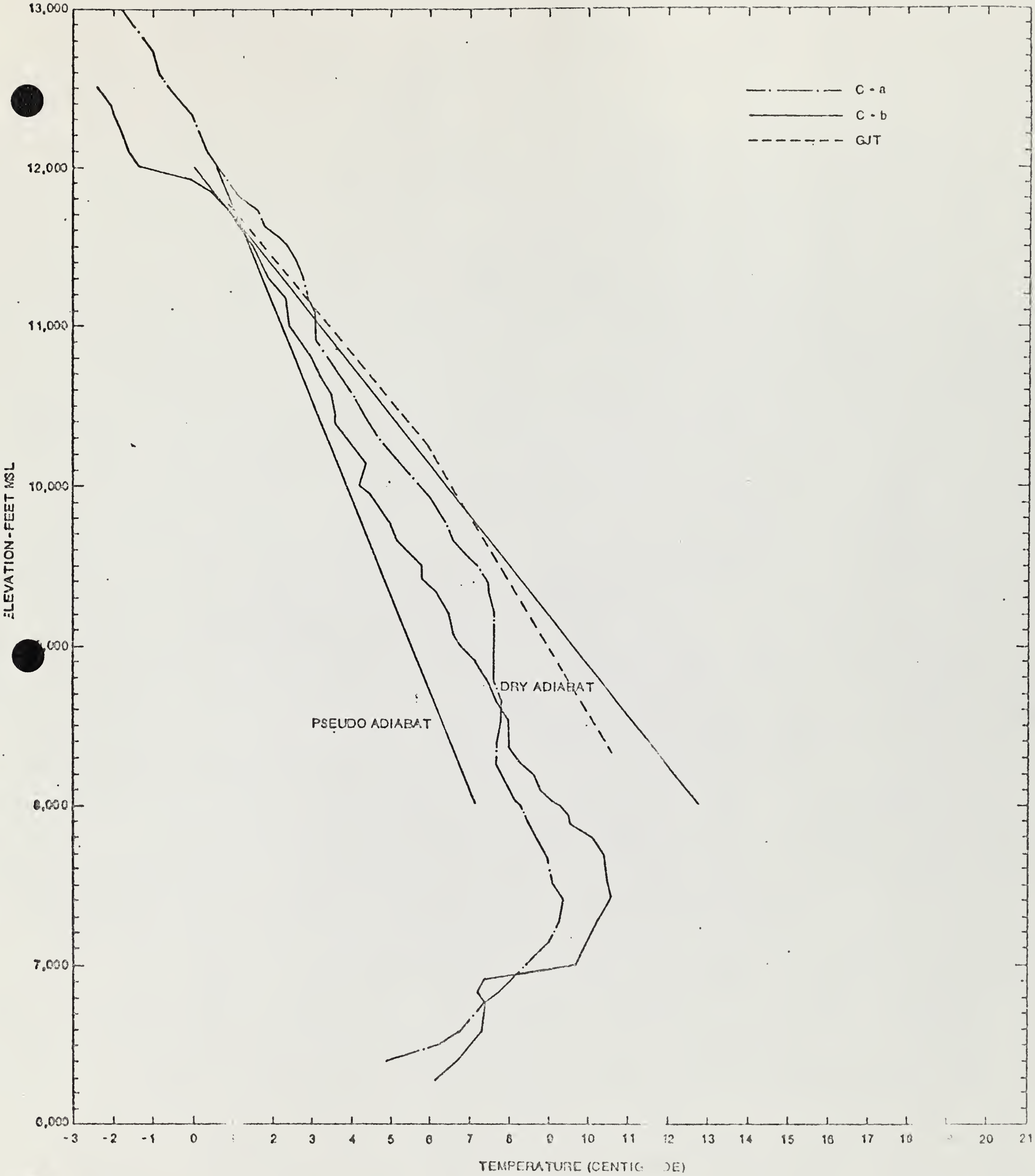


Figure B-1 l. Comparison of Vertical Tempera re Soundings Made at 0800 on 10 October 1974 for Trac C-a and C-b

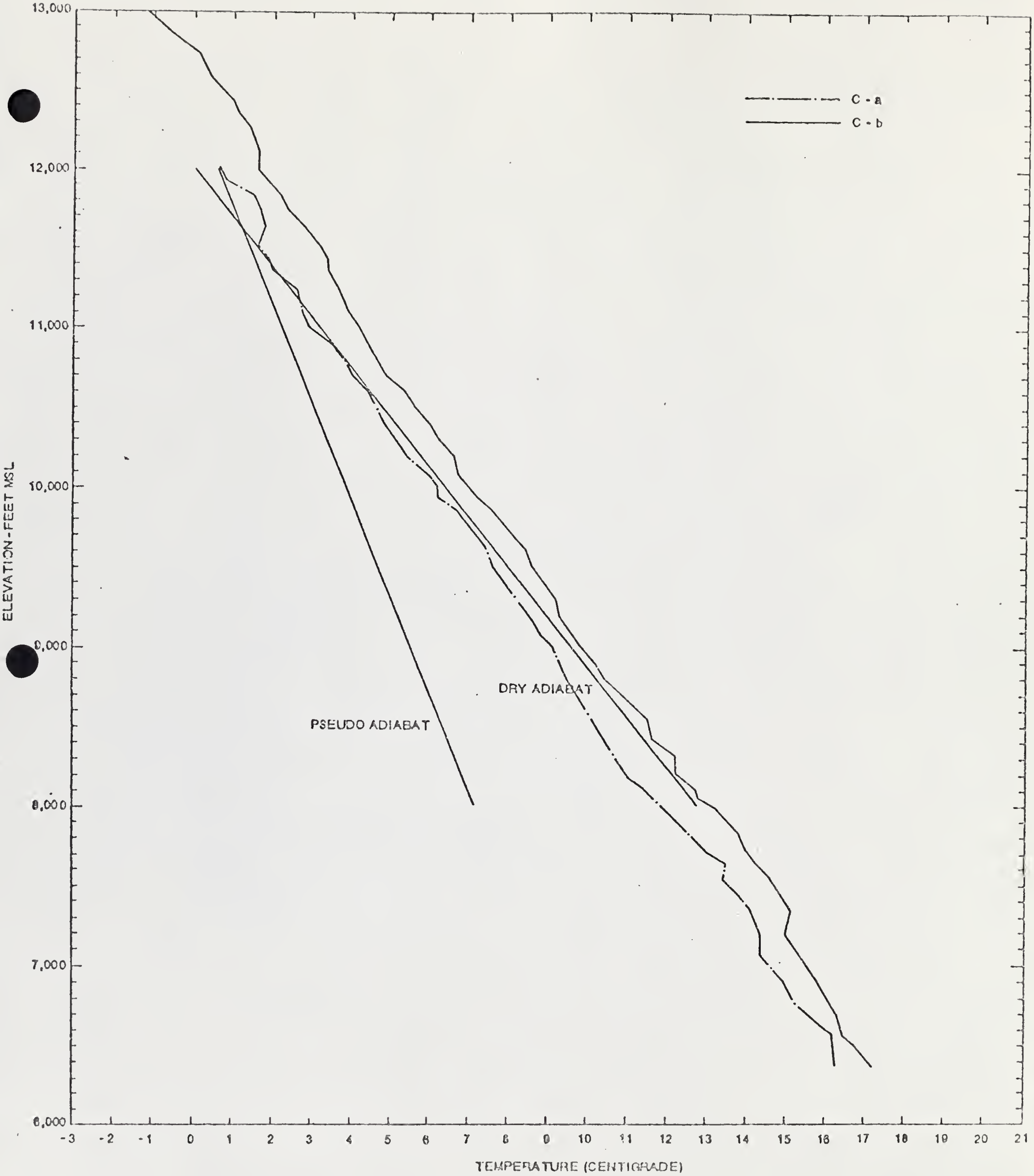


Figure B-25. Comparison of Vertical Temperature Soundings Made at 1200 on 10 October 1974 for Tracts C-a and C-b

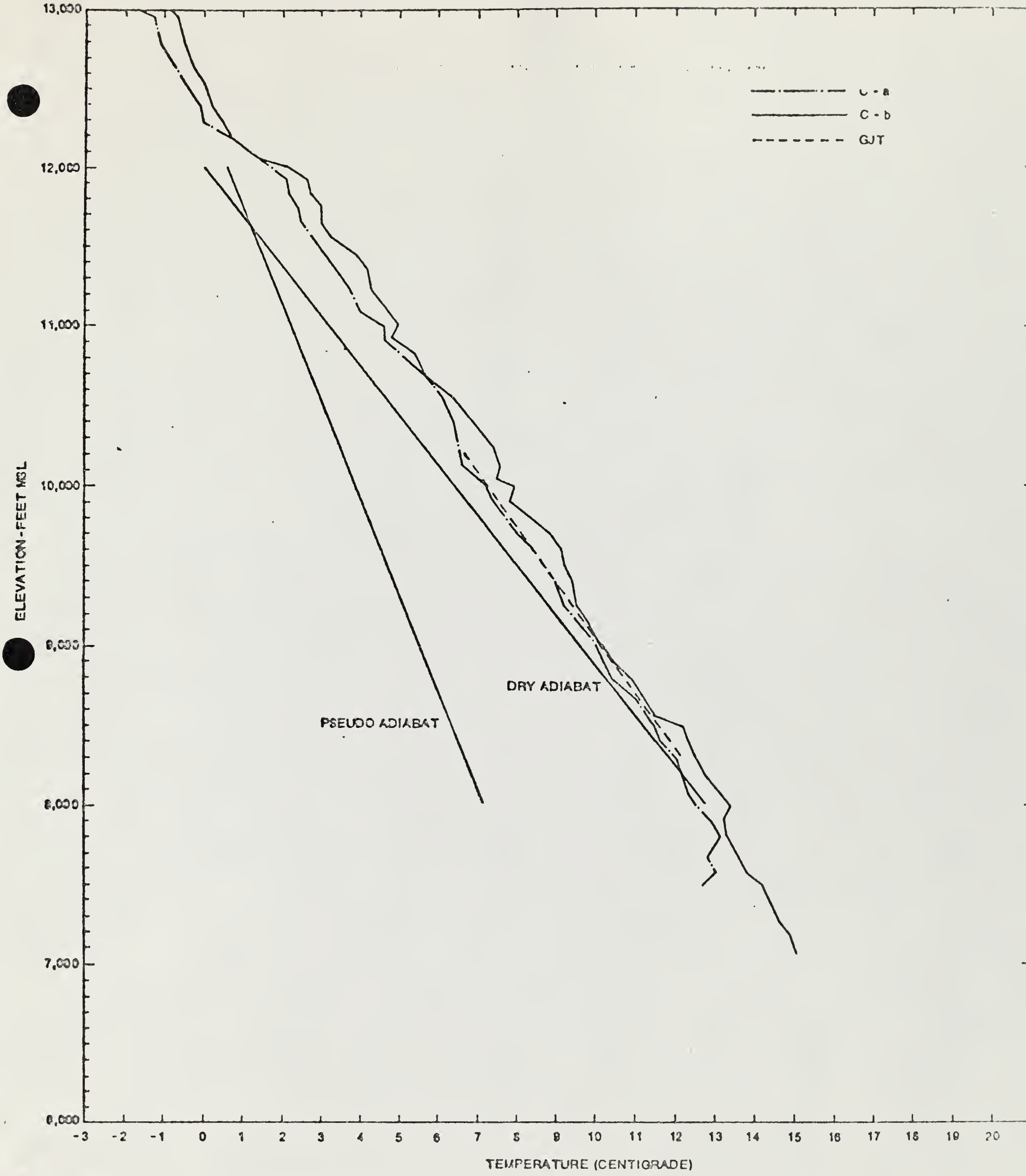


Figure B-26. Comparison of Vertical Temperature Soundings Made at 1700 on 10 October 1974 for Tracts C-a and C-b

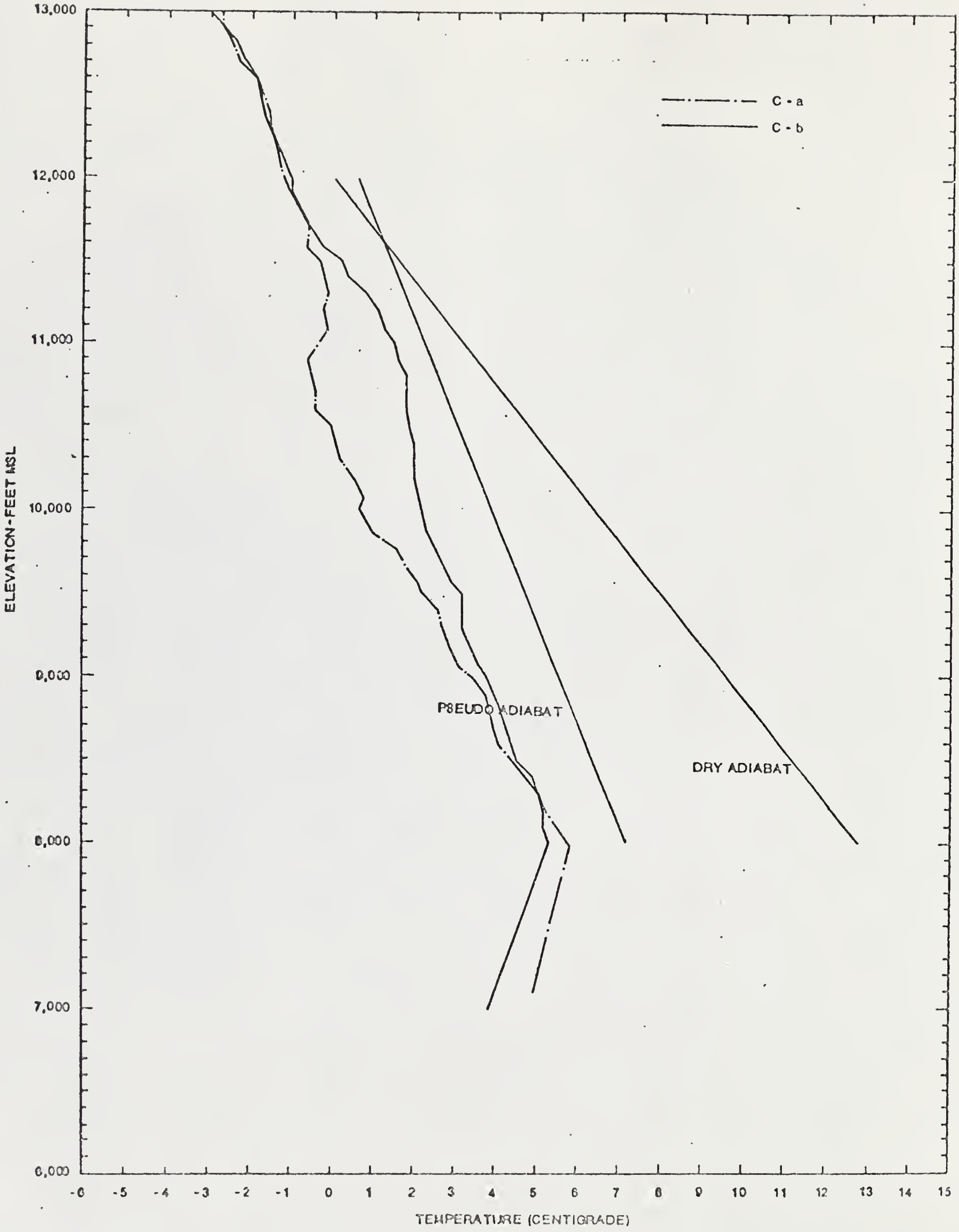


Figure B-27. Comparison of Vertical Temperature Soundings Made at 0500 on 11 October 1974 for Tracts C-a and C-b

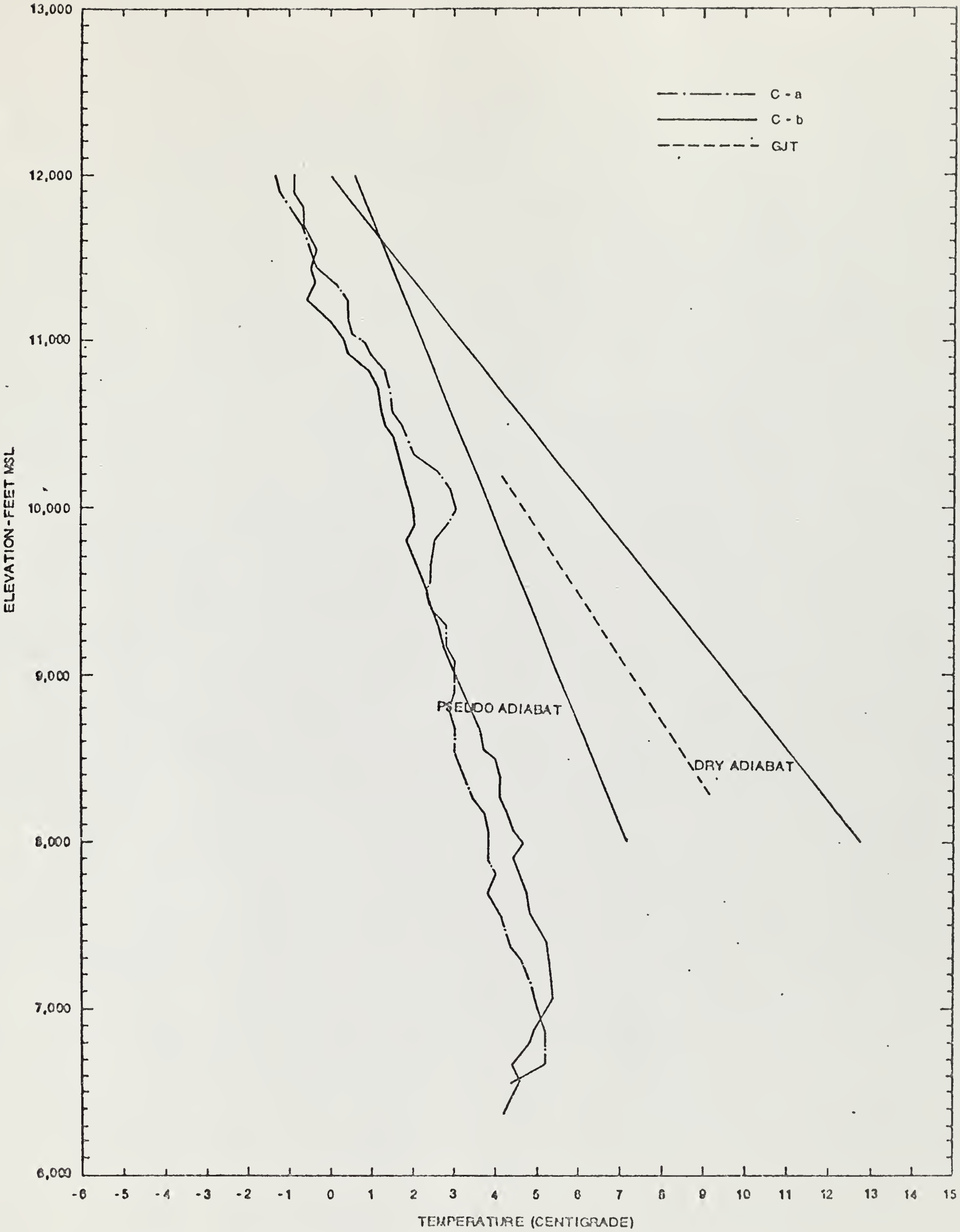


Figure B-28. Comparison of Vertical Temperature Soundings Made at 0800 on 11 October 1974 for Tracts C-a and C-b

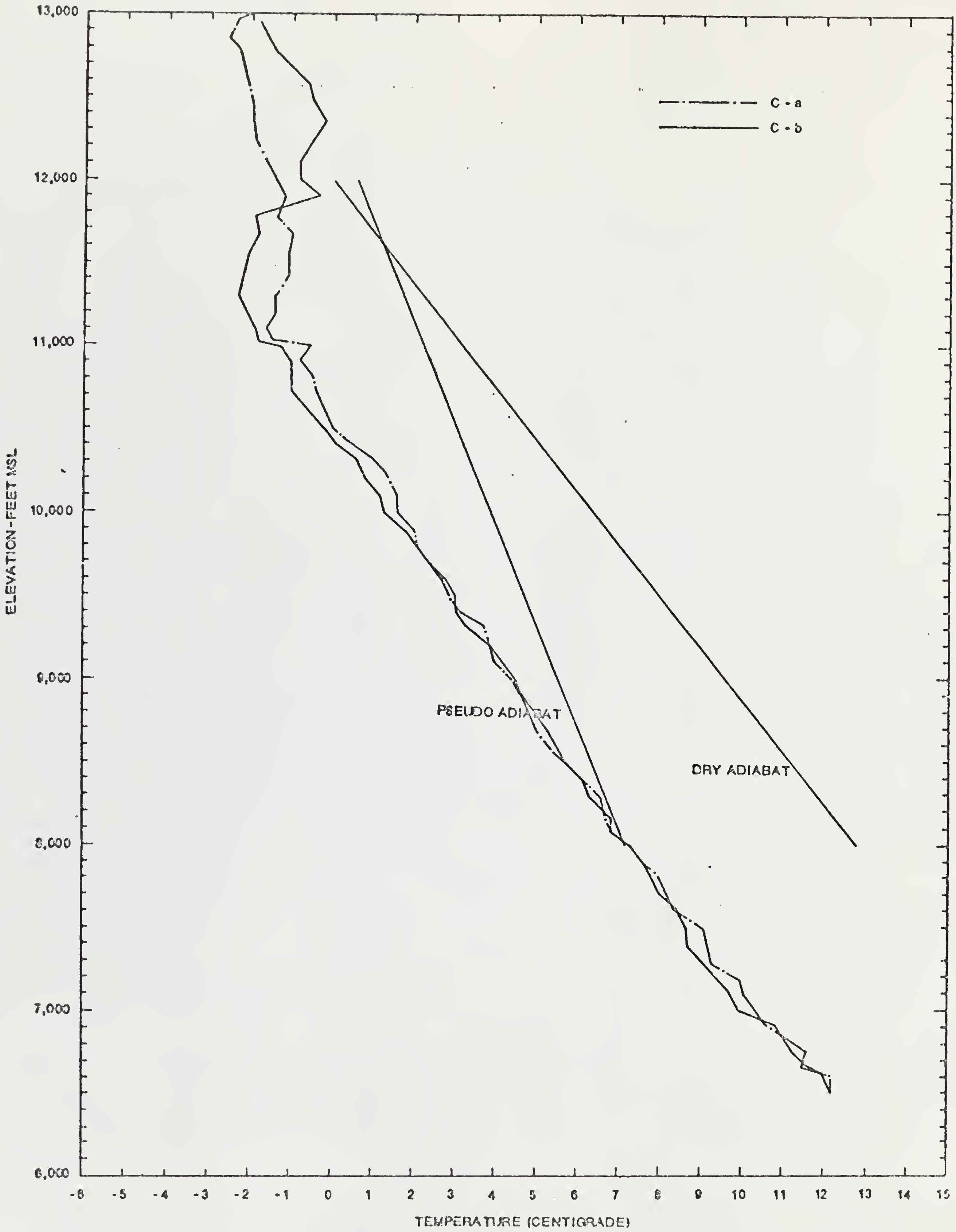


Figure B-29. Comparison of Vertical Temperature Soundings Made at 1200 on 13 October 1974 for Tracts C-a and C-b

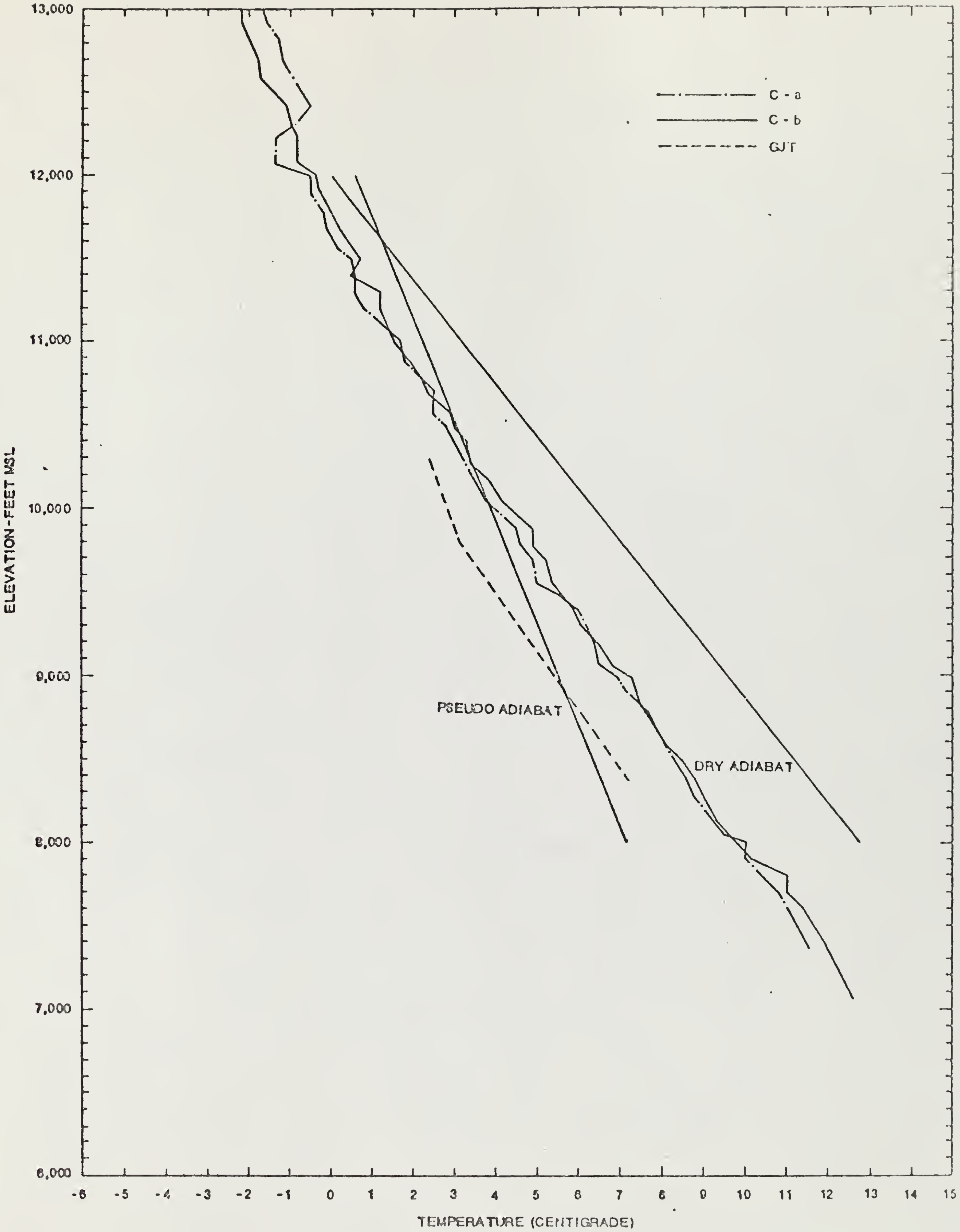


Figure B-30. Comparison of Vertical Temperature Soundings Made at 1700 on 13 October 1974 for Tracts C-a and C-b

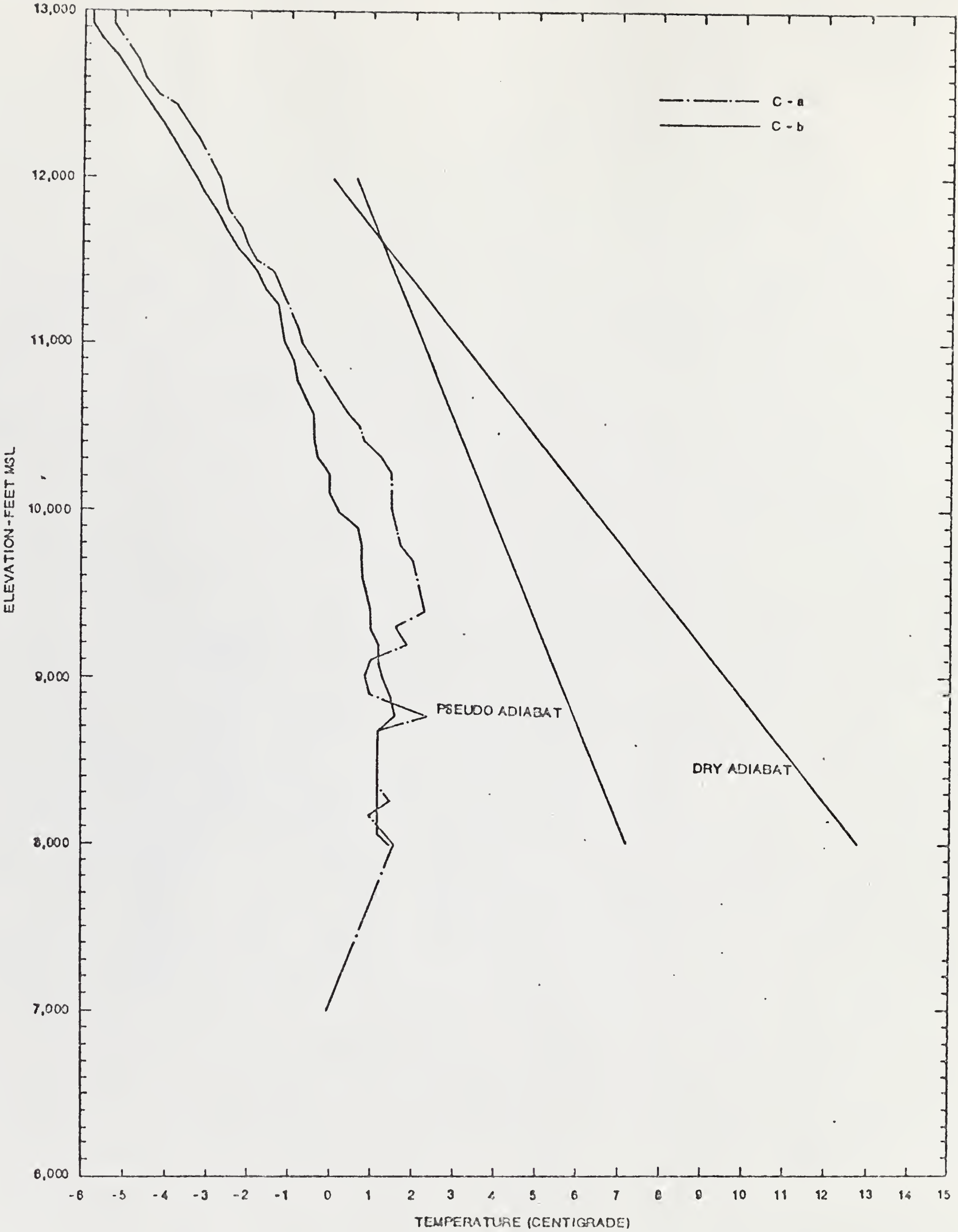


Figure B-31. Comparison of Vertical Temperature Soundings Made at 0500 on 14 October 1974 for Tracts C-a and C-b

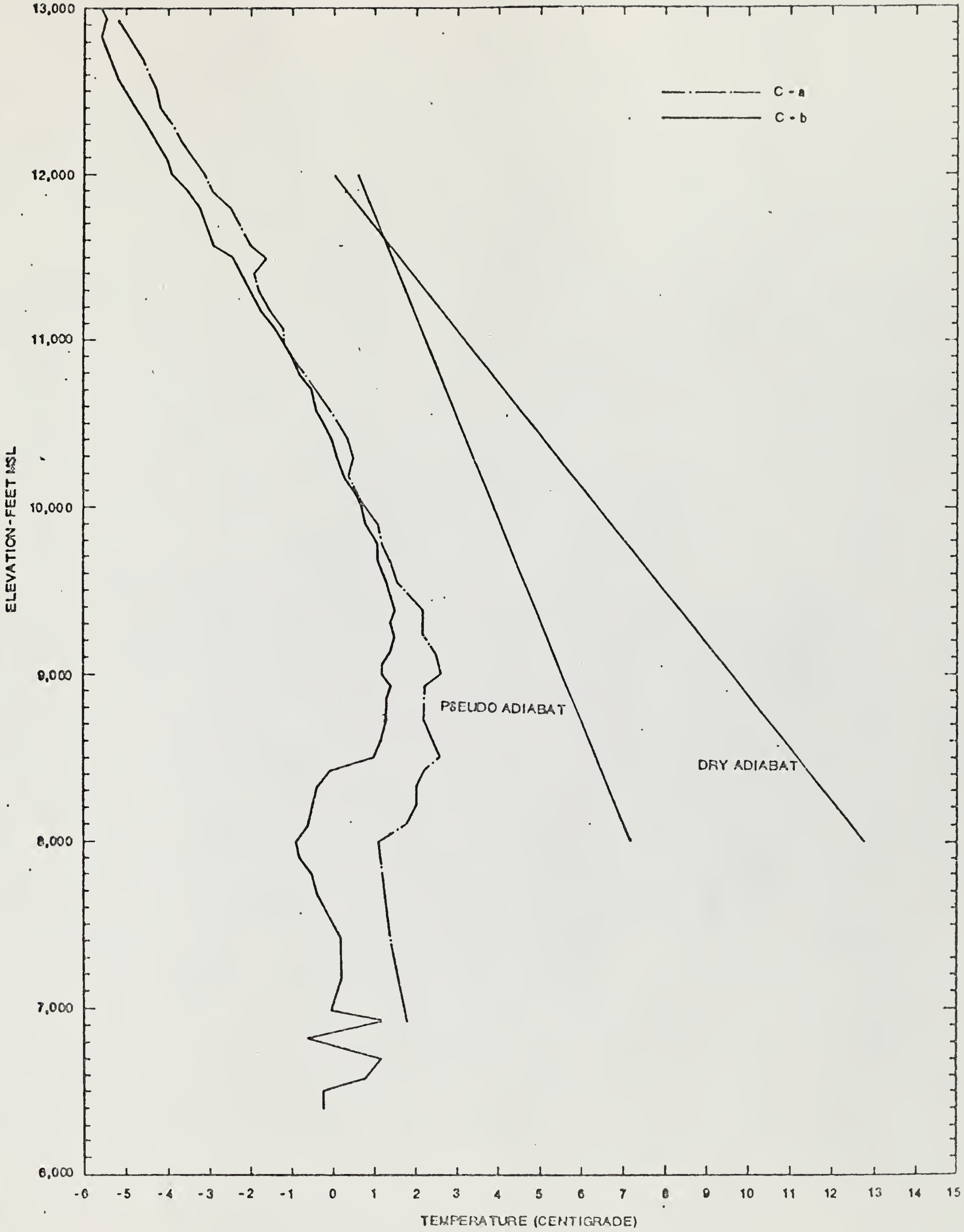


Figure B-32. Comparison of Vertical Temperature Soundings Made at 0800 on 14 October 1974 for Tracts C-a and C-b

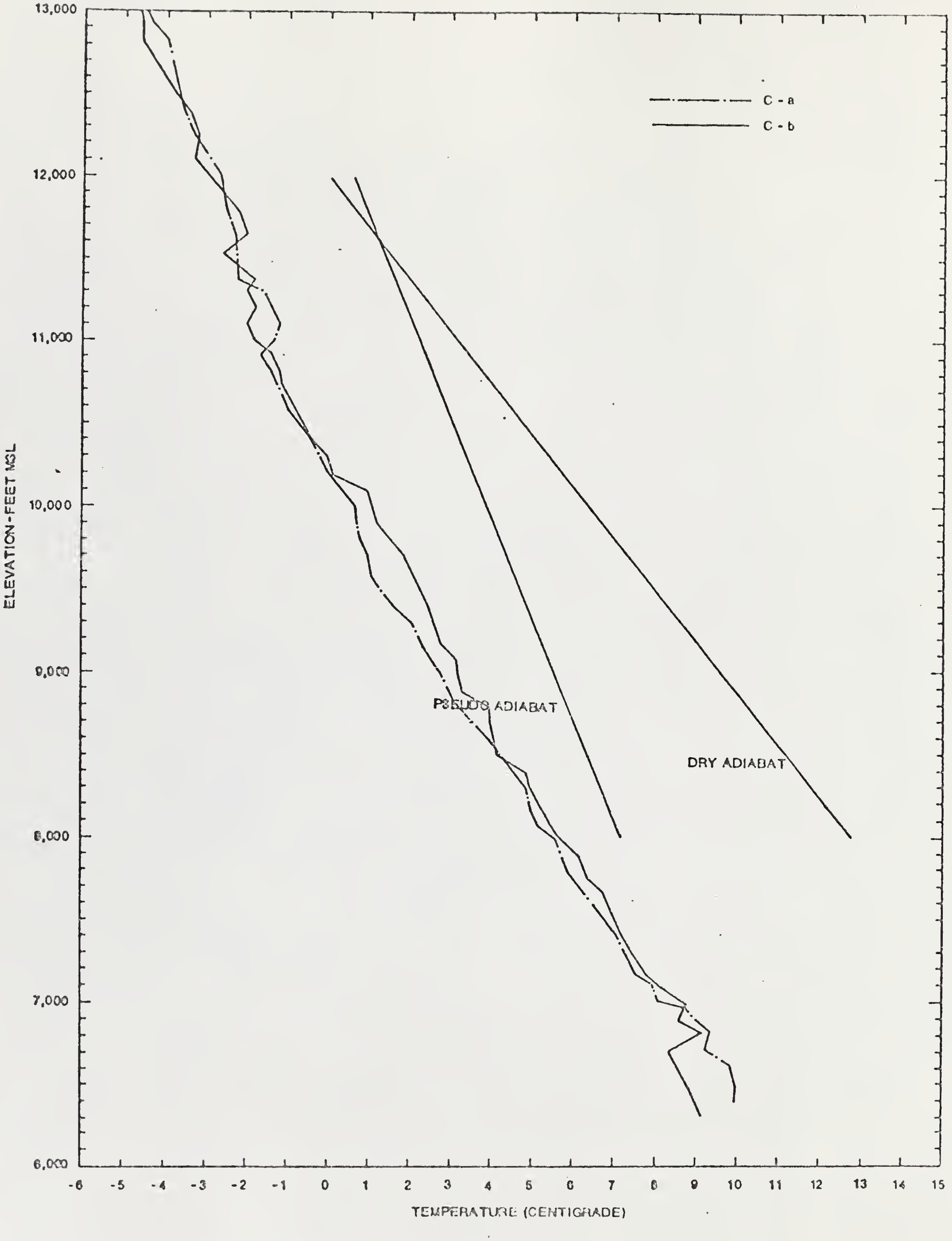


Figure B-33. Comparison of Vertical Temperature Soundings Made at 1200 on 14 October 1974 for Tracts C-a and C-b

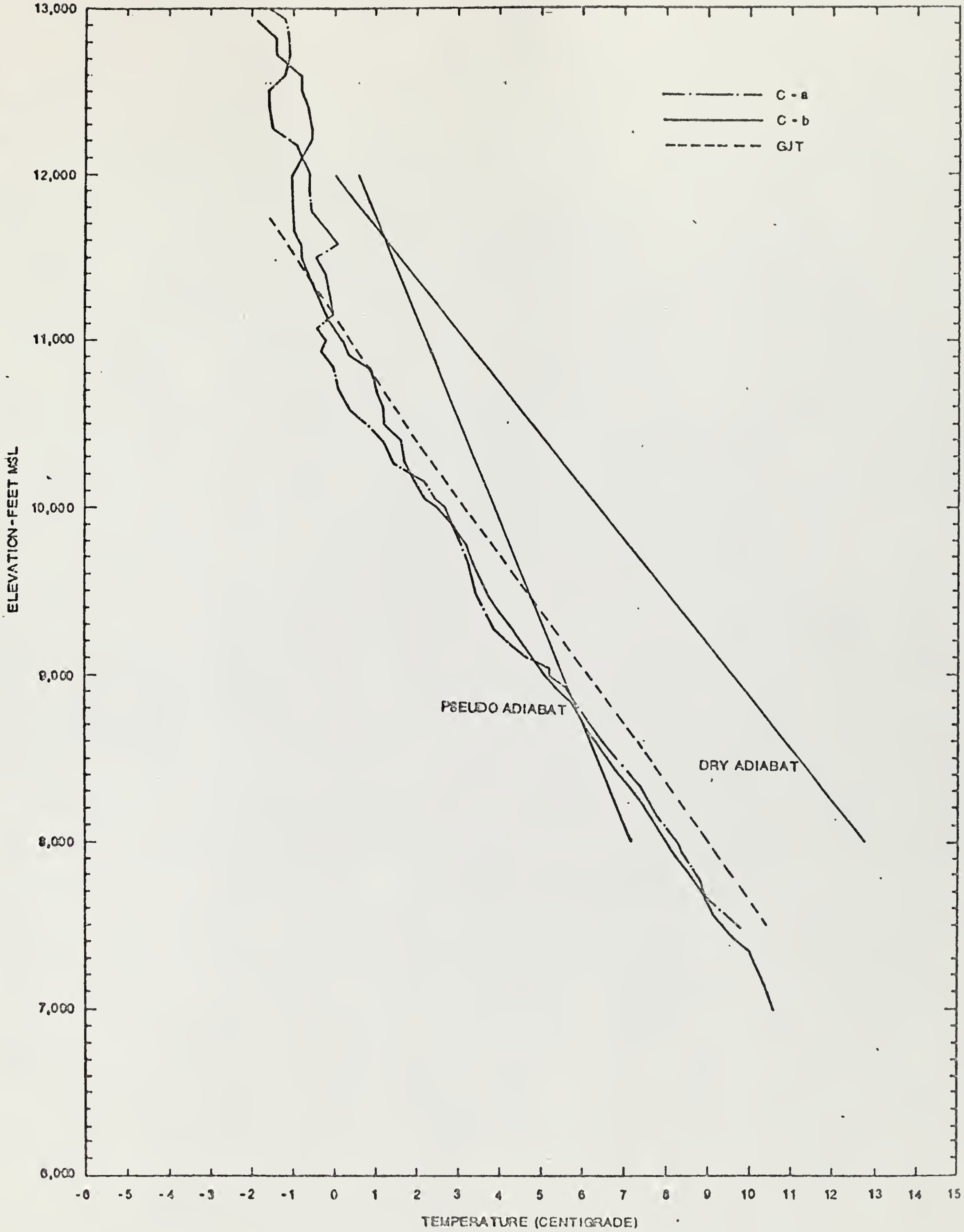


Figure B-34. Comparison of Vertical Temperature Soundings Made at 1700 on 14 October 1974 for Tracts C-a and C-b

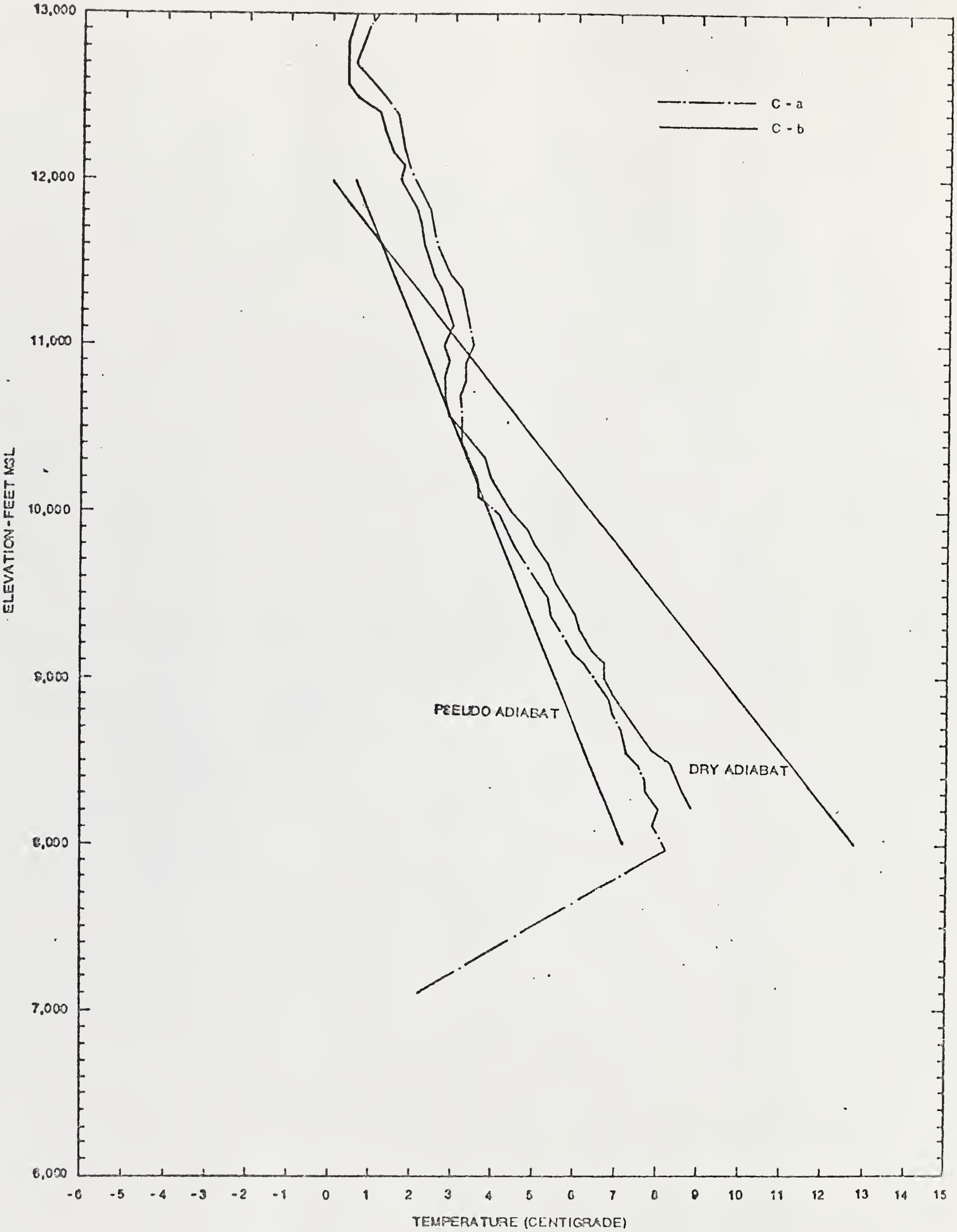


Figure B-35. Comparison of Vertical Temperature Soundings Made at 0500 on 15 October 1974 for Tracts C-a and C-b

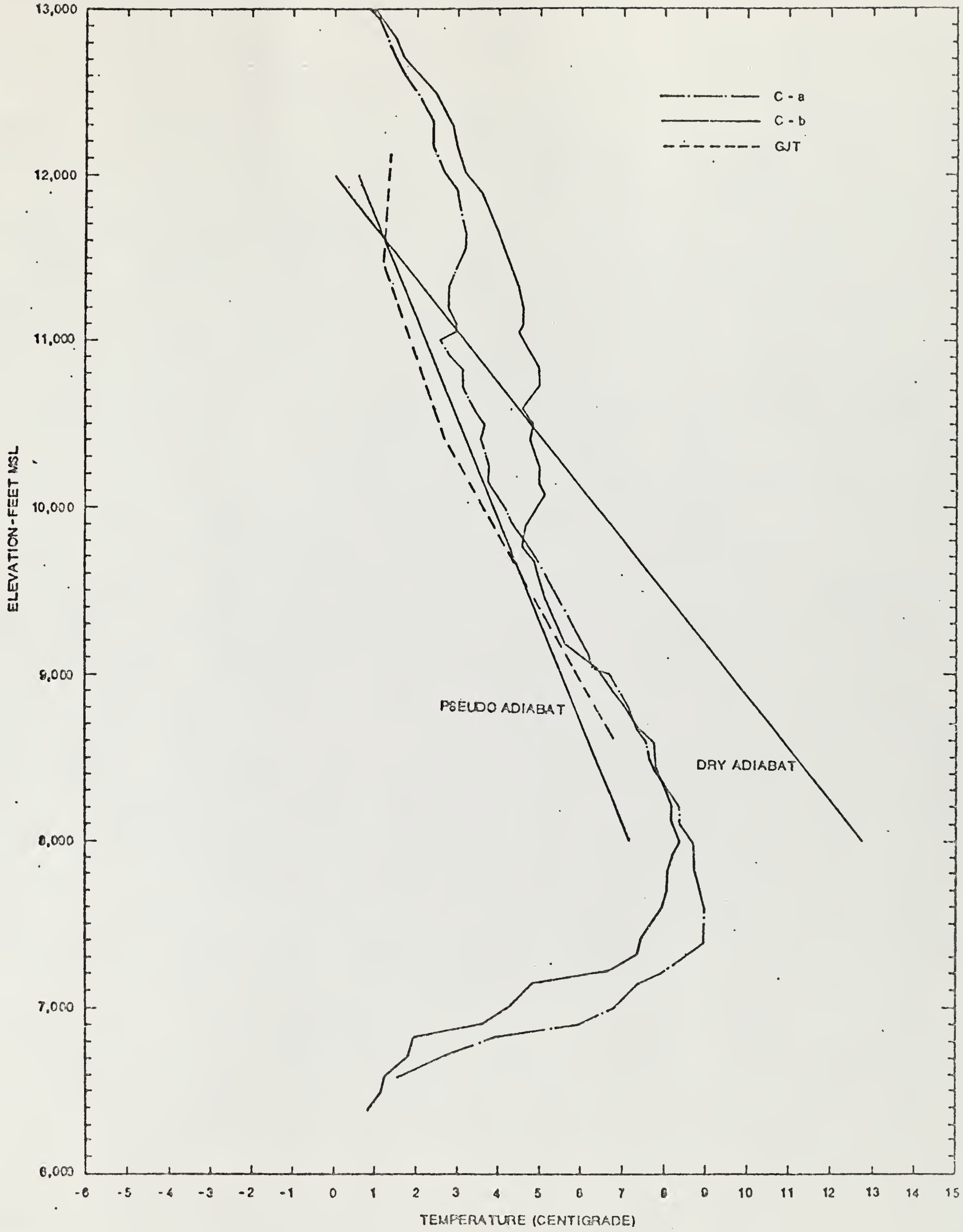


Figure B-36. Comparison of Vertical Temperature Soundings Made at 0800 on 15 October 1974 for Tracts C-a and C-b

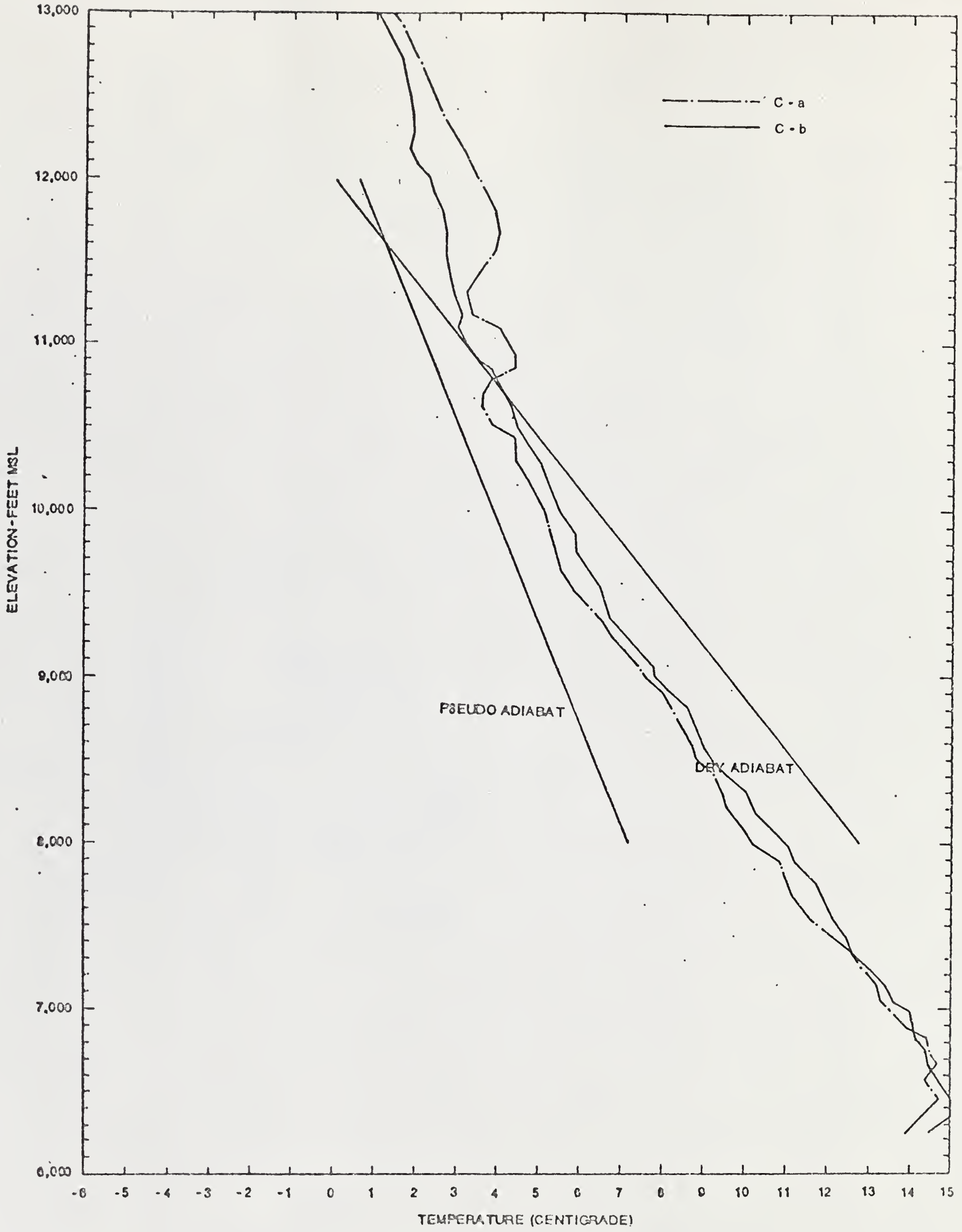


Figure B-37. Comparison of Vertical Temperature Soundings Made at 1200 on 15 October 1974 for Tracts C-a and C-b

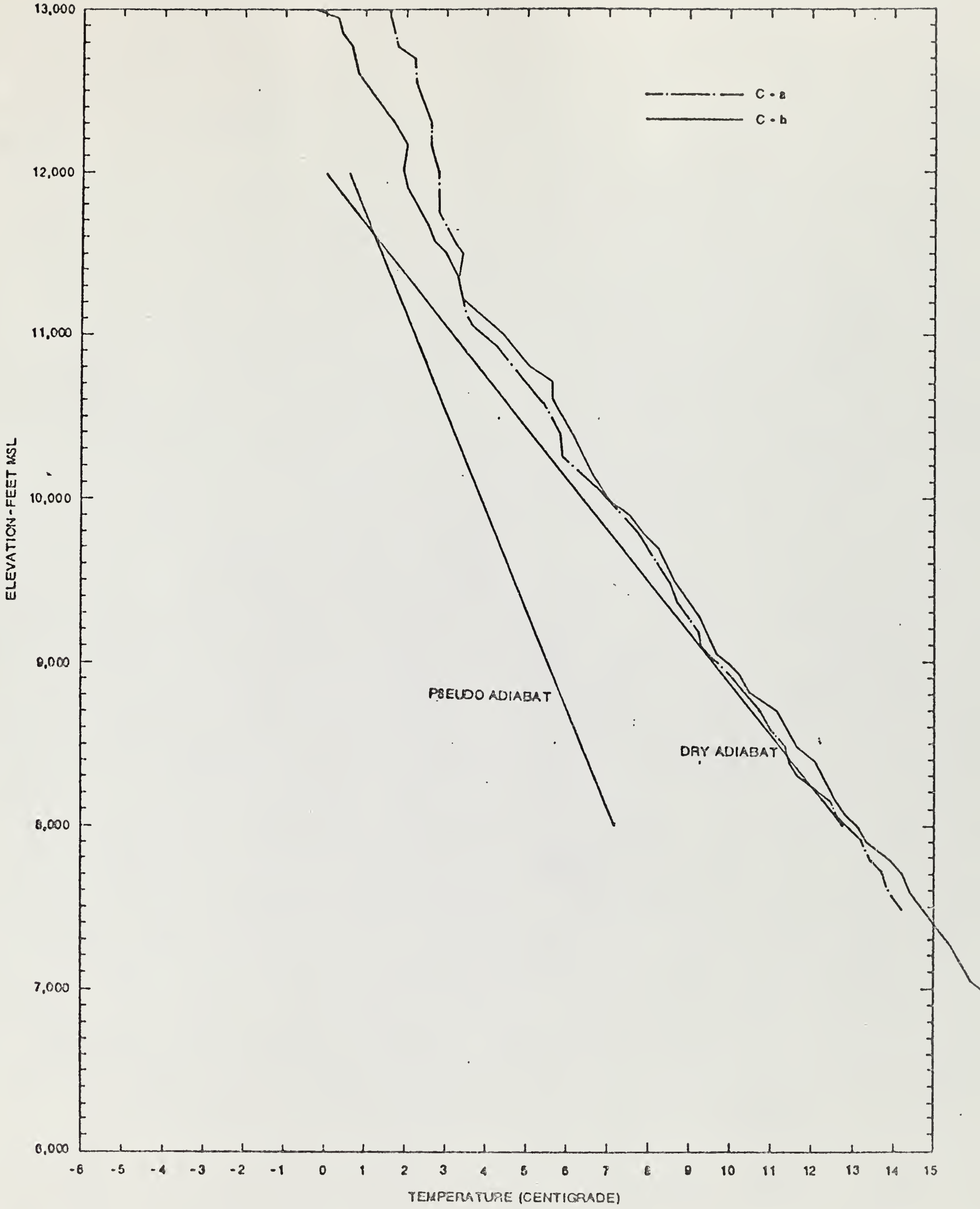
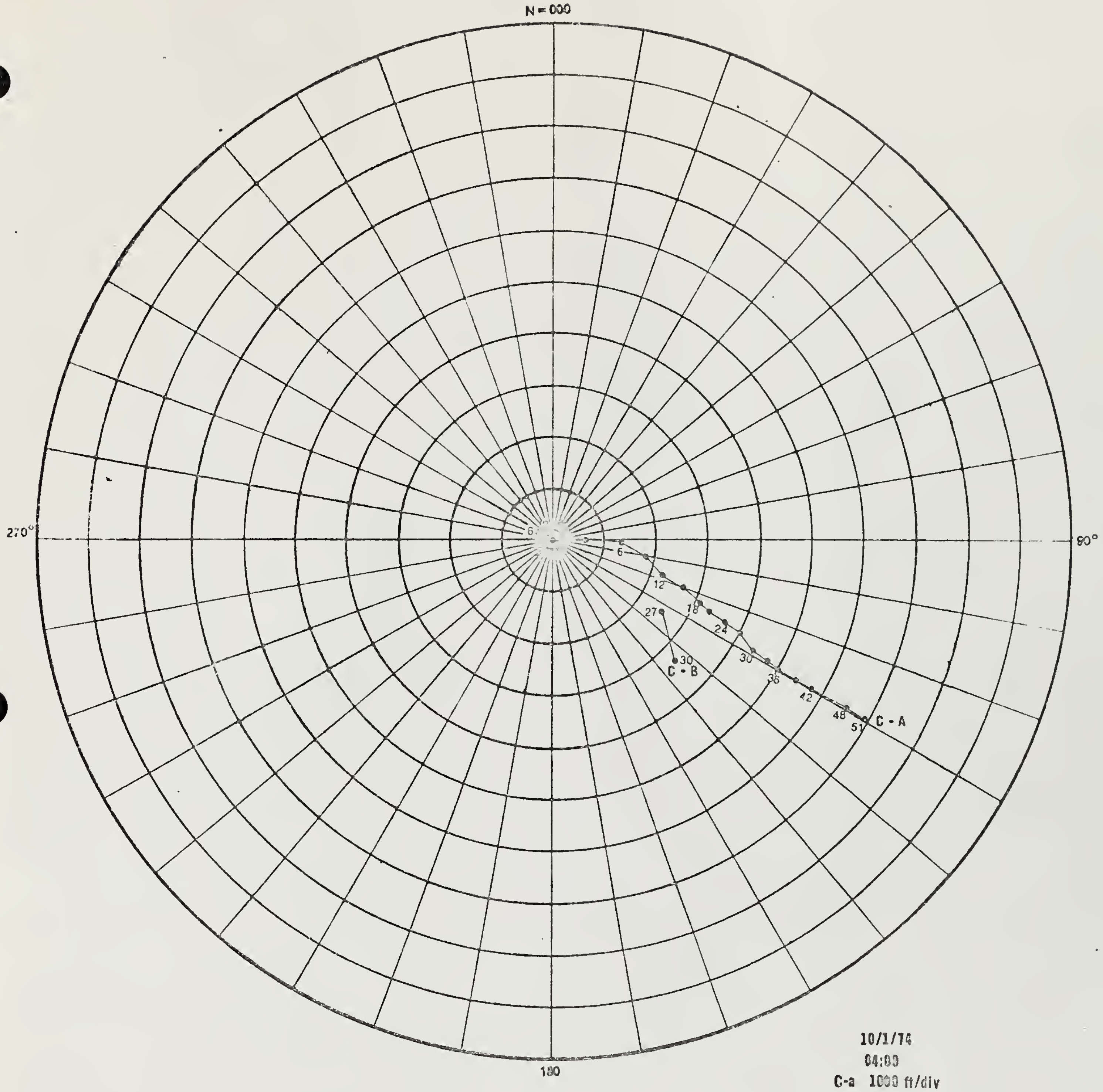


Figure B-38. Comparison of Vertical Temperature Soundings Made at 1700 on 15 October 1974 for Tracts C-a and C-b

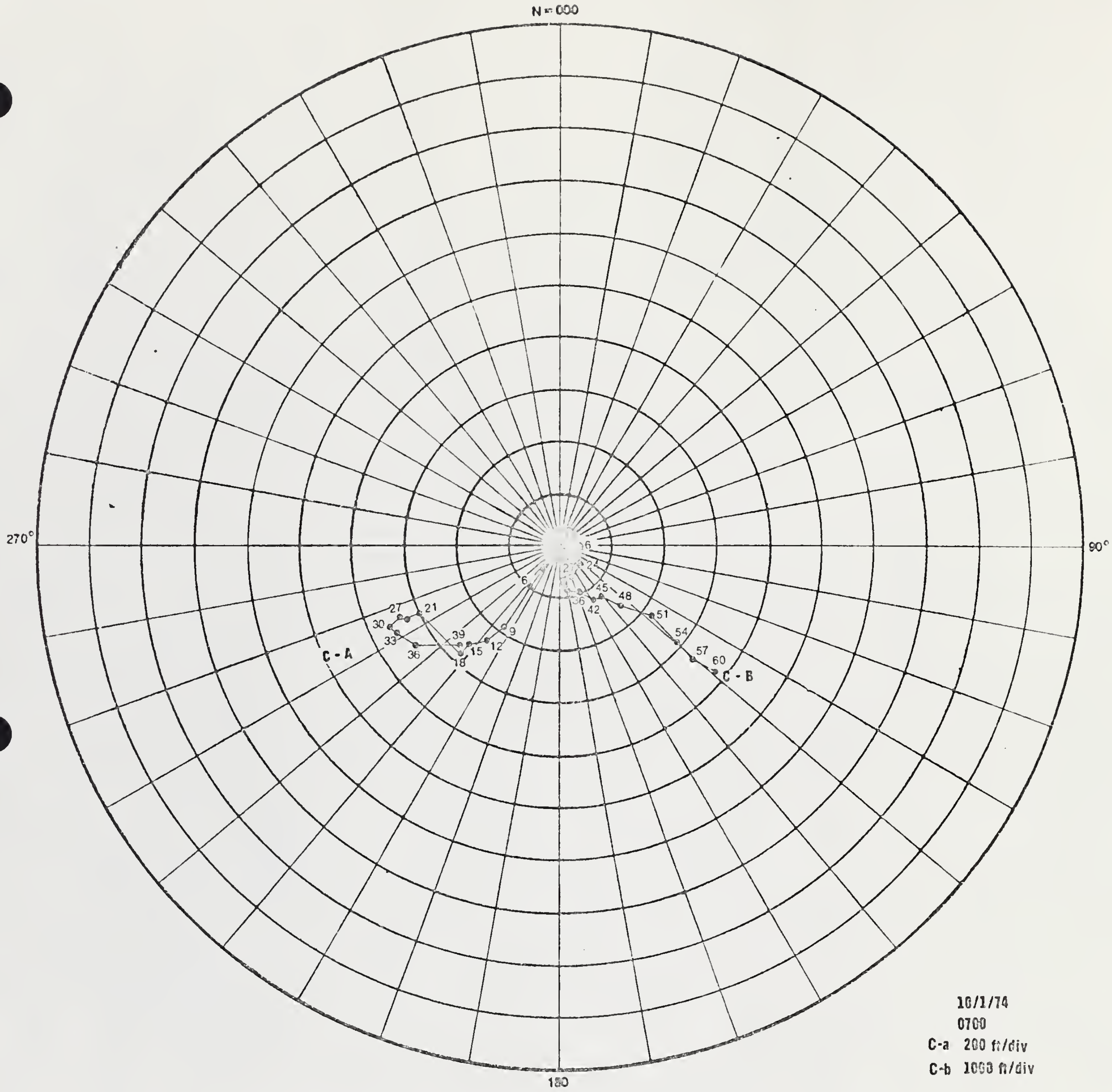
APPENDIX C

Winds Aloft Comparisons Between Federal Oil Shale Tracts C-a and C-b During the Period 1 October 1974 through 15 October 1974



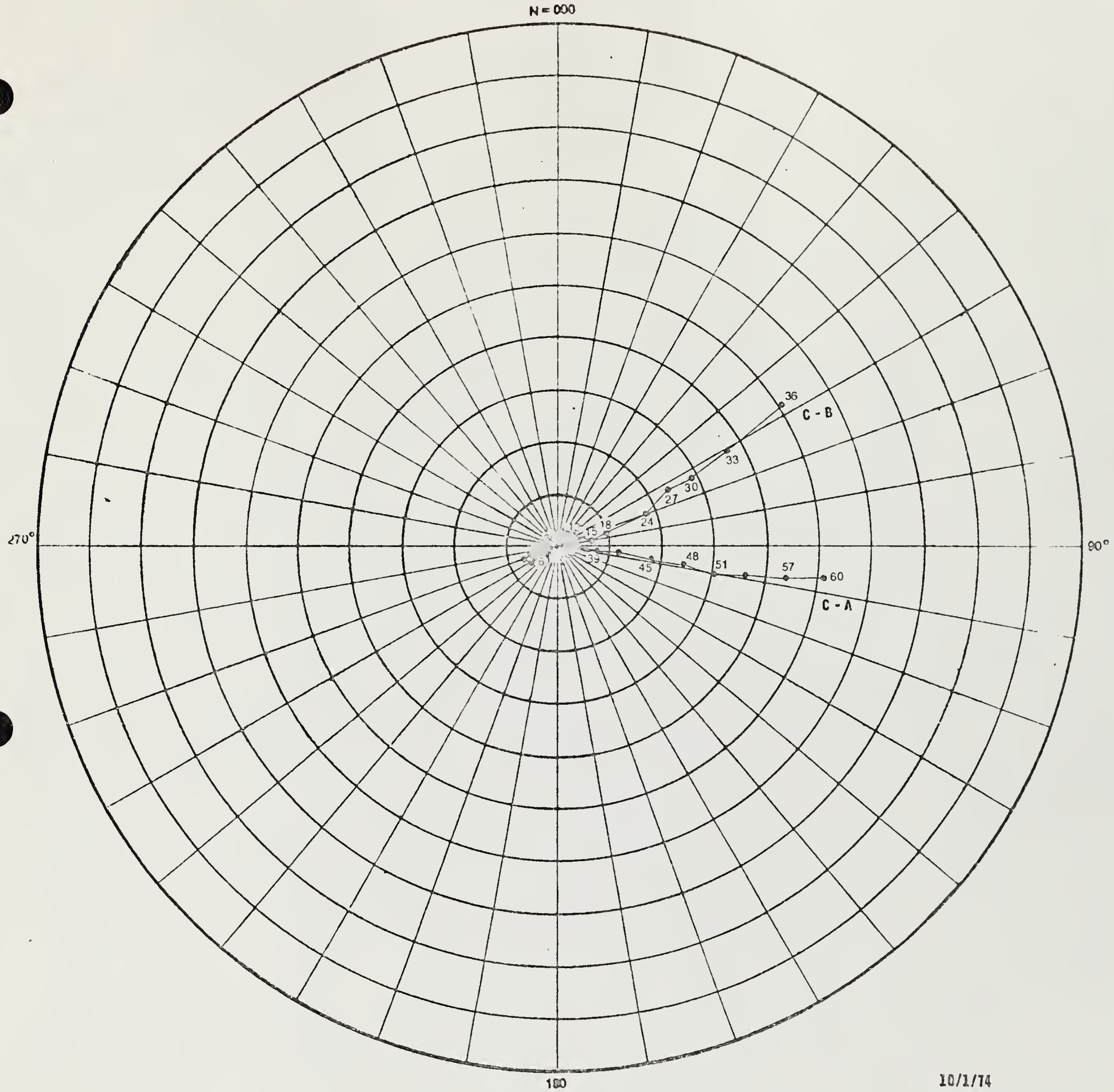
10/1/74
04:00
C-a 1000 ft/div
C-b 1000 ft/div

Figure C-1. Comparison of Pibal Soundings Made at 0400 MST on 1 October 1974 over Tracts C-a and C-b



10/1/74
0700
C-a 200 ft/div
C-b 1000 ft/div

Figure C-2. Comparison of Pibal Soundings Made at 0700 MST on 1 October 1974 over Tracts C-a and C-b



10/1/74
1100
C-a 1000 ft/div
C-b 1000 ft/div

Figure C-3. Comparison of Pibal Soundings made at 1100 MST on 1 October 1974 over Tracts C-a and C-b

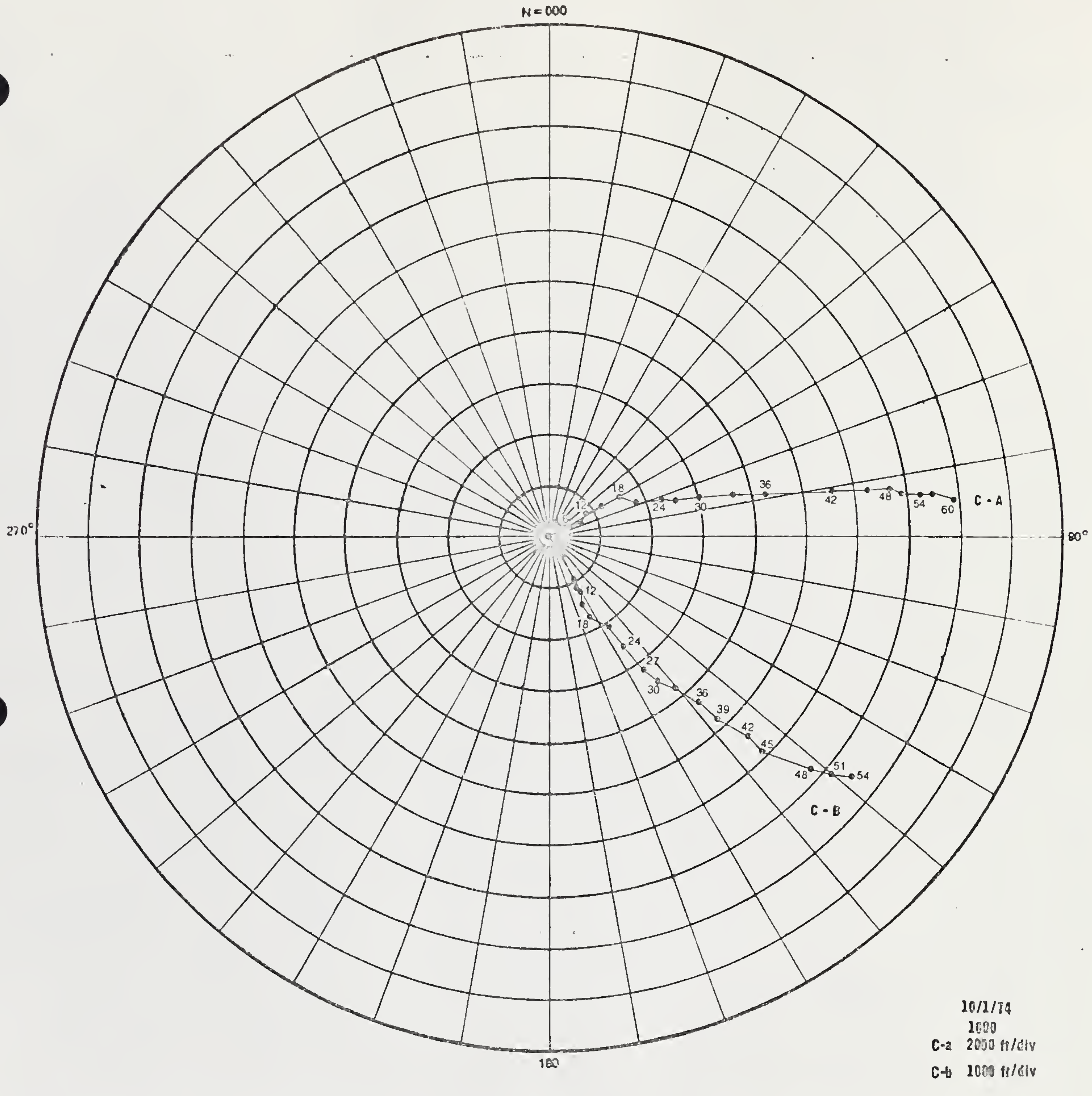


Figure C-4. Comparison of Pibal Soundings made at 1600 MST on 1 October 1974 over Tracts C-a and C-b

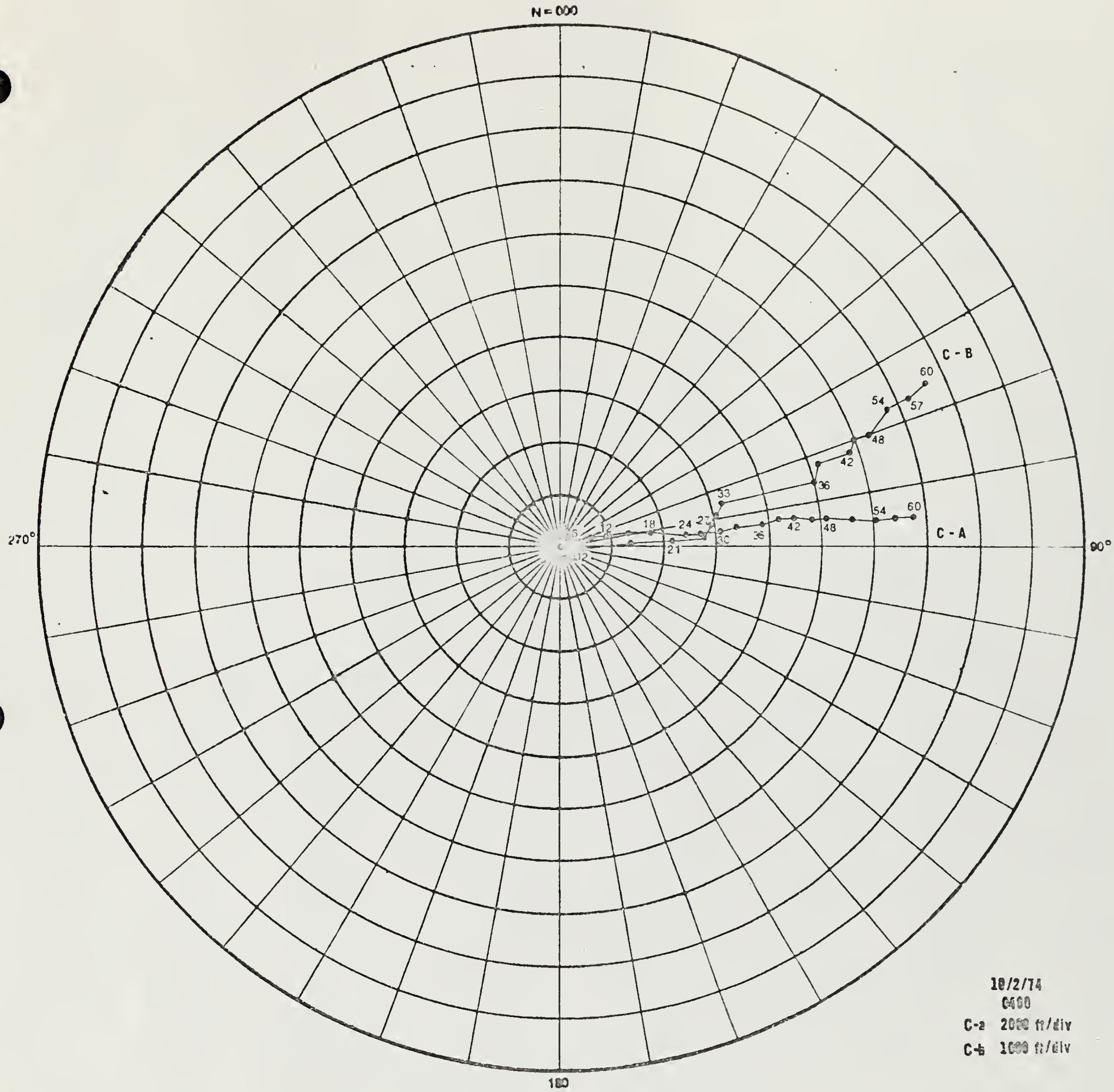


Figure C-5. Comparison of Pibal Soundings made at 0400 MST on 2 October 1974 over Tracts C-a and C-b

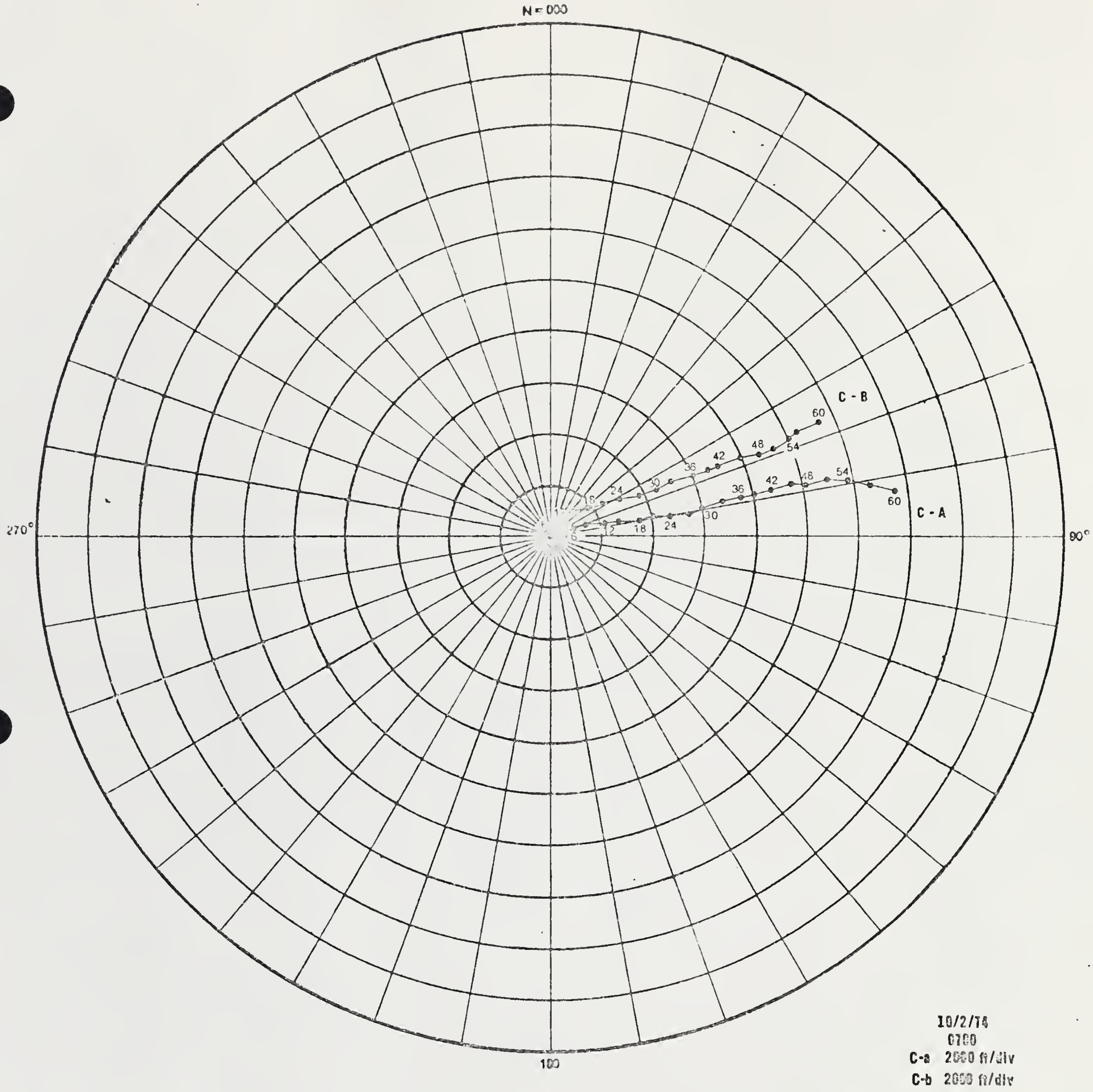
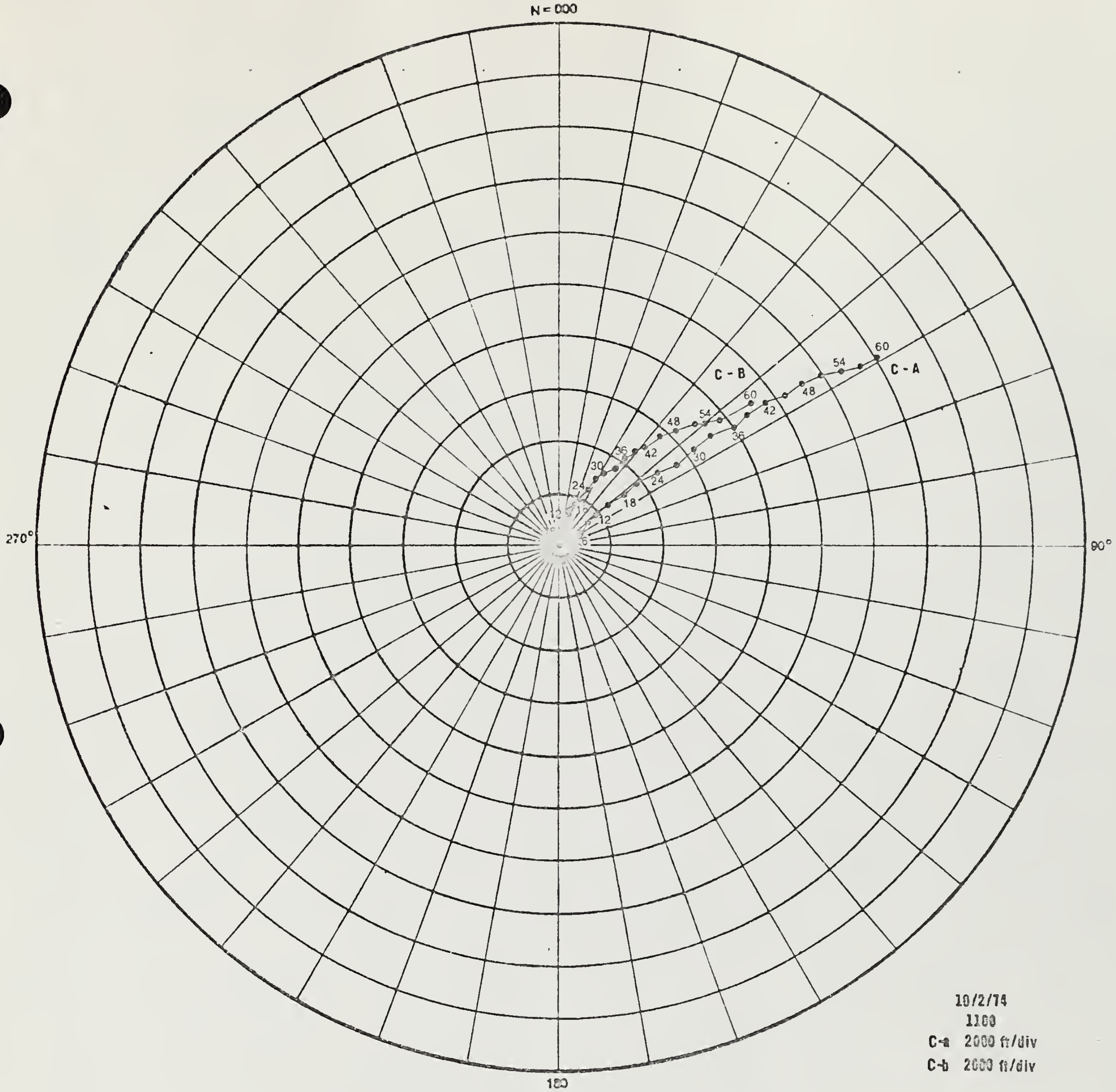


Figure C-6. Comparison of Pibal Soundings made at 0700 MST on 2 October 1974 over Tracts C-a and C-b



10/2/74
1100
C-a 2000 ft/div
C-b 2000 ft/div

Figure C-7. Comparison of Pibal Soundings made at 1100 MST on 2 October 1974 over Tracts C-a and C-b

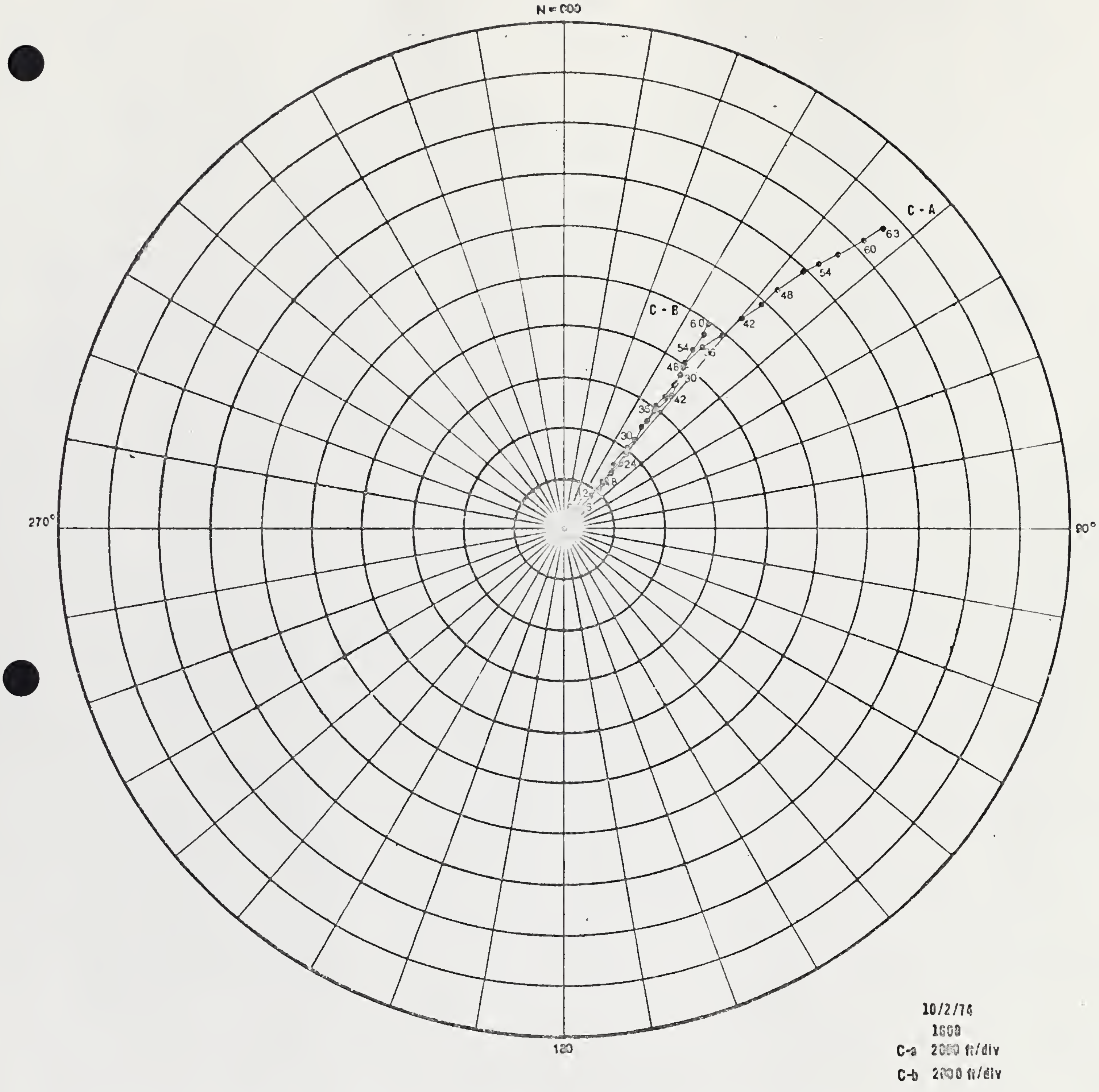
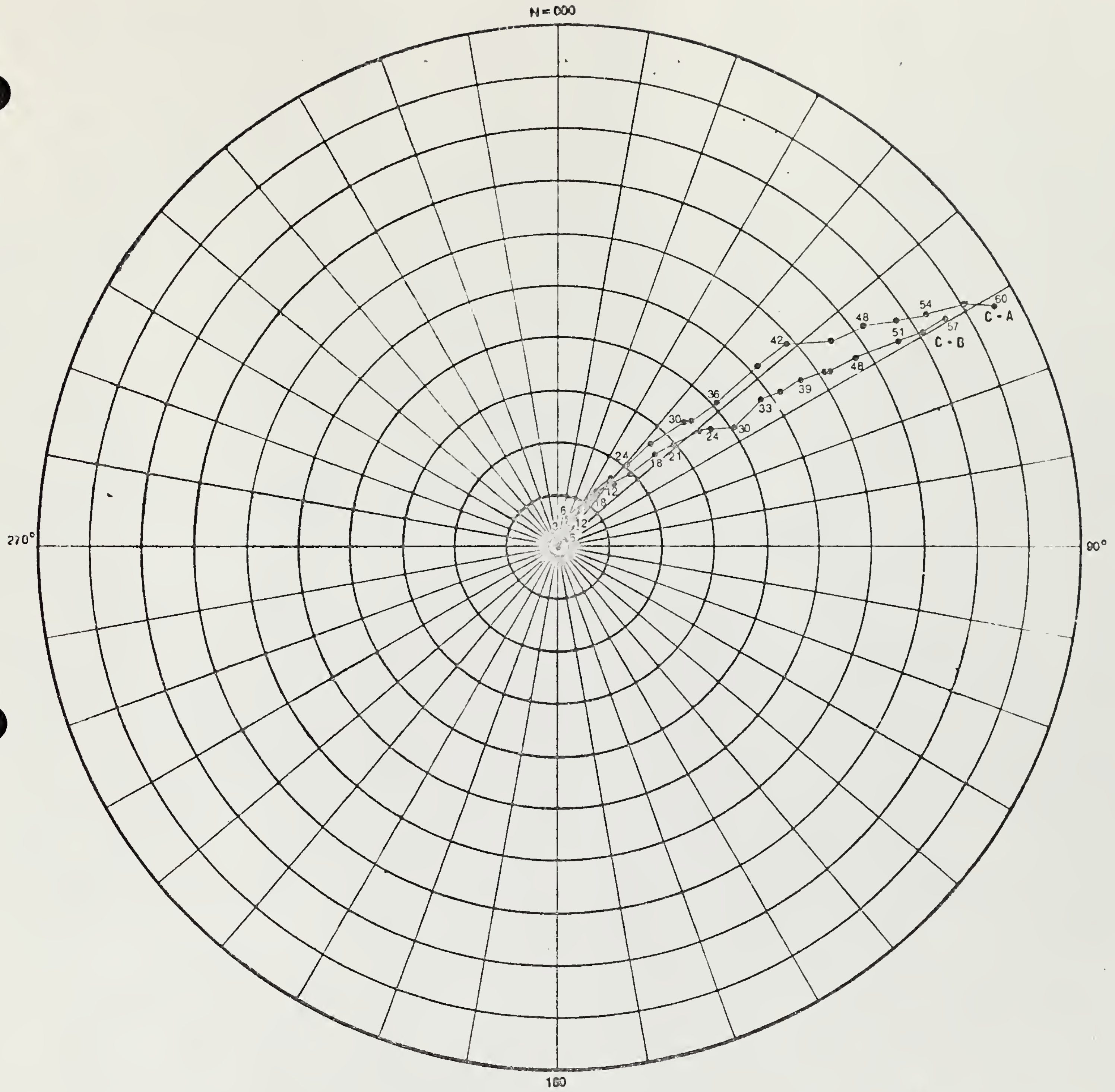


Figure C-8. Comparison of Pibal Soundings made at 1600 MST on 2 October 1974 over Tracts C-a and C-b



10/3/74
0700
C-a 2000 ft/div
C-b 2000 ft/div

Figure C-9. Comparison of Pibal Soundings made at 0700 MST on 3 October 1974 over Tracts C-a and C-b

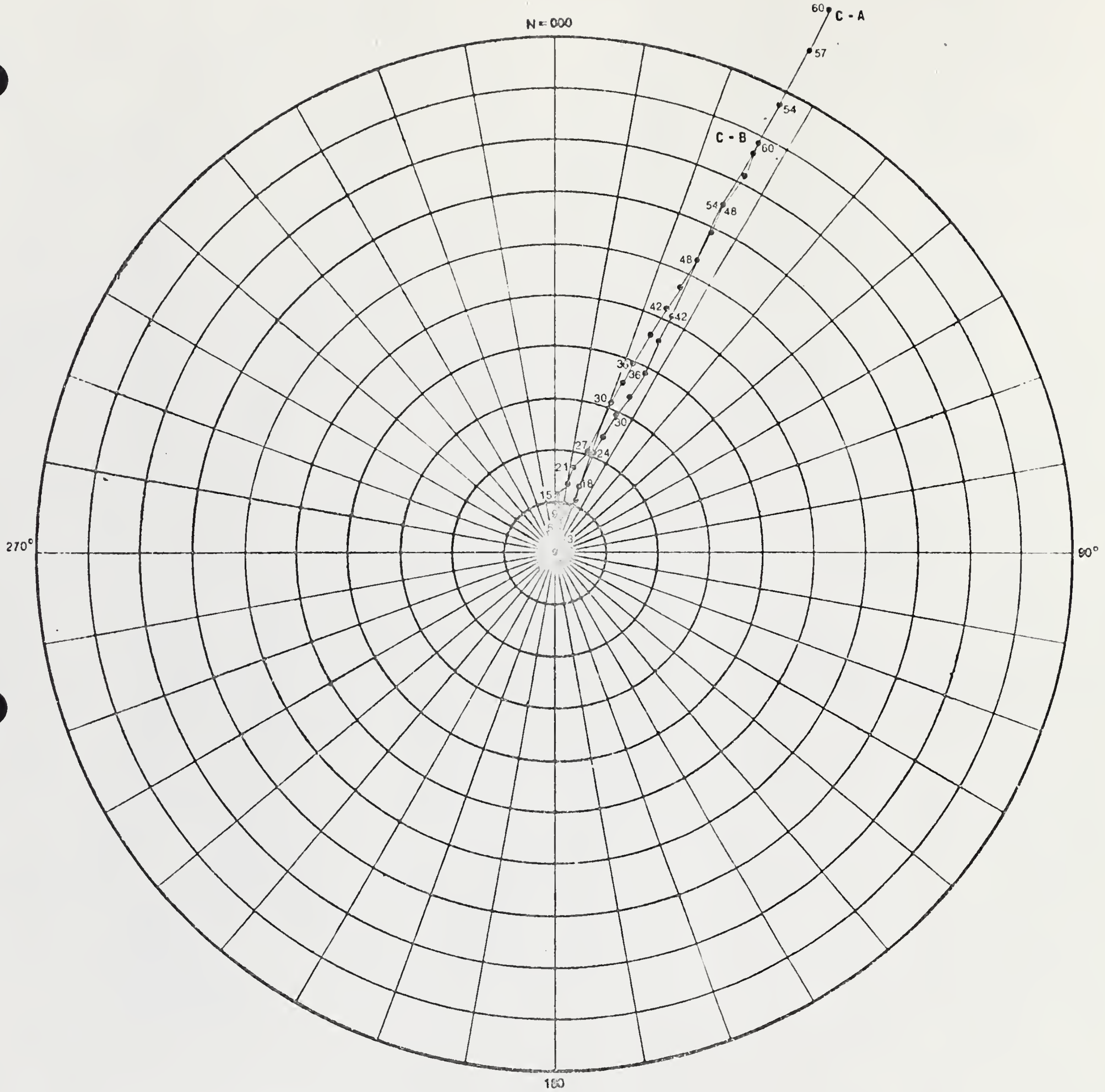


Figure C-10. Comparison of Pibal Soundings made at 1100 MST on 3 October 1974 over Tracts C-a and C-b

10/3/74
1100
C-a 2000 ft/div
C-b 2000 ft/div

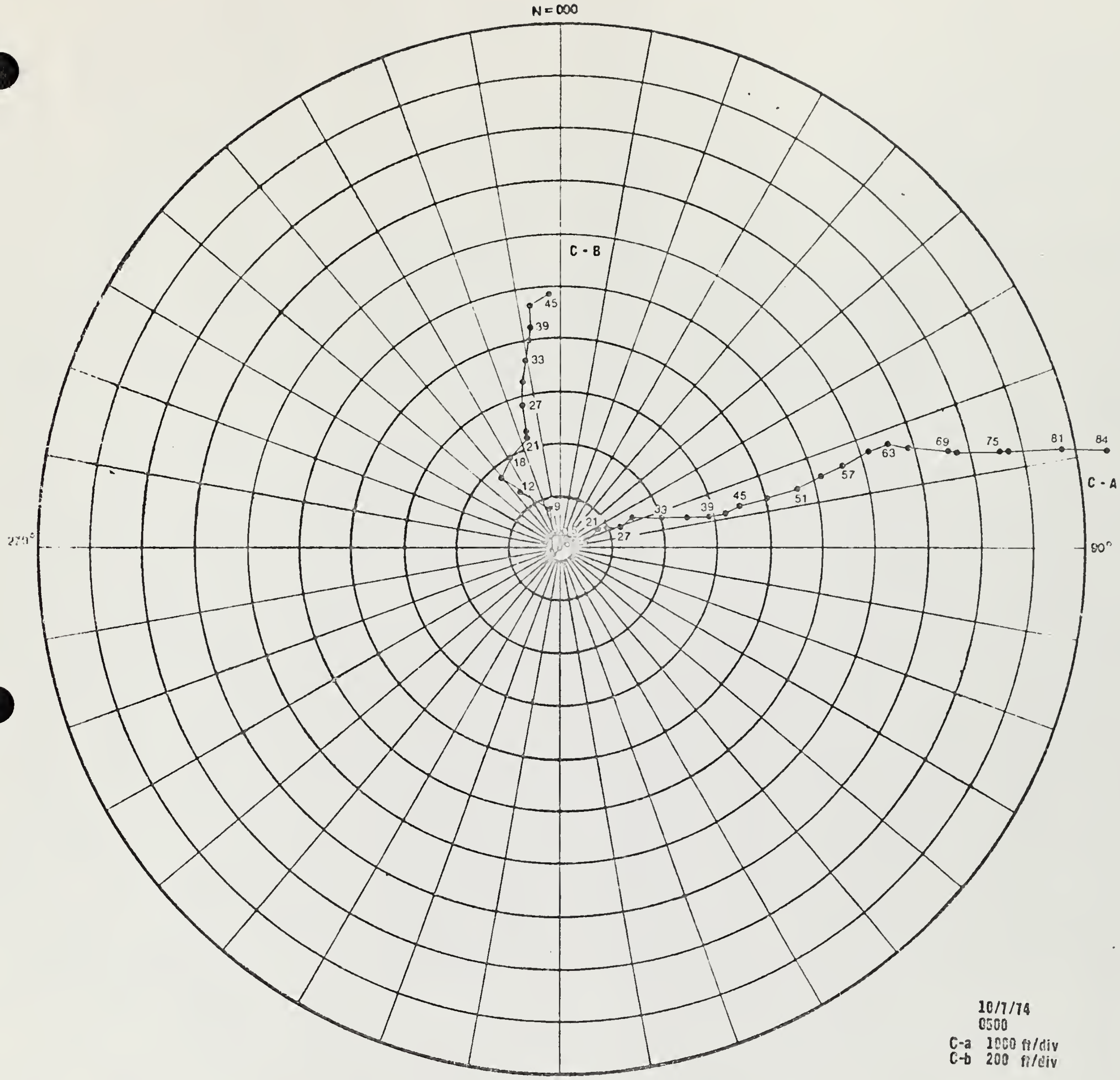
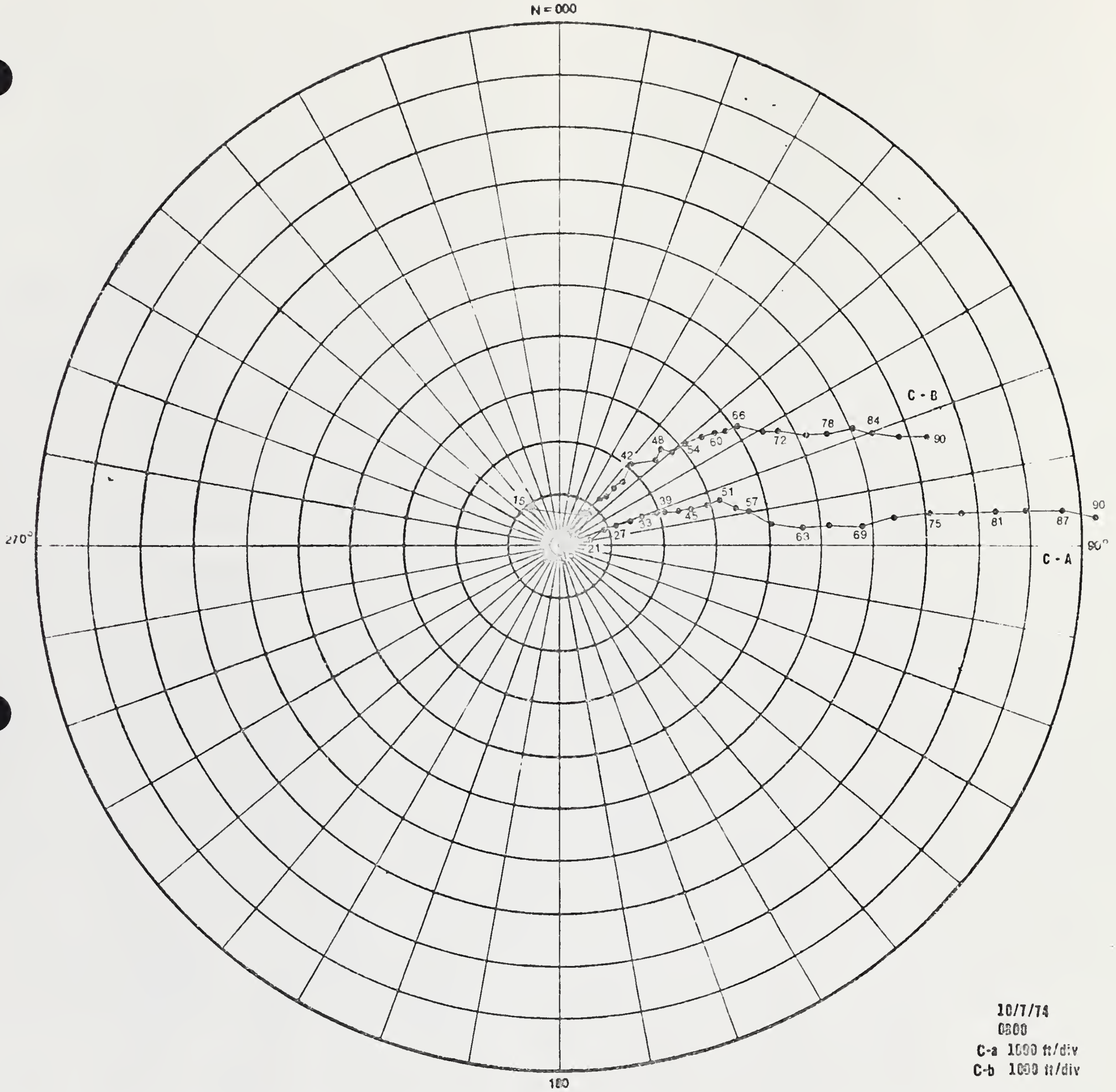
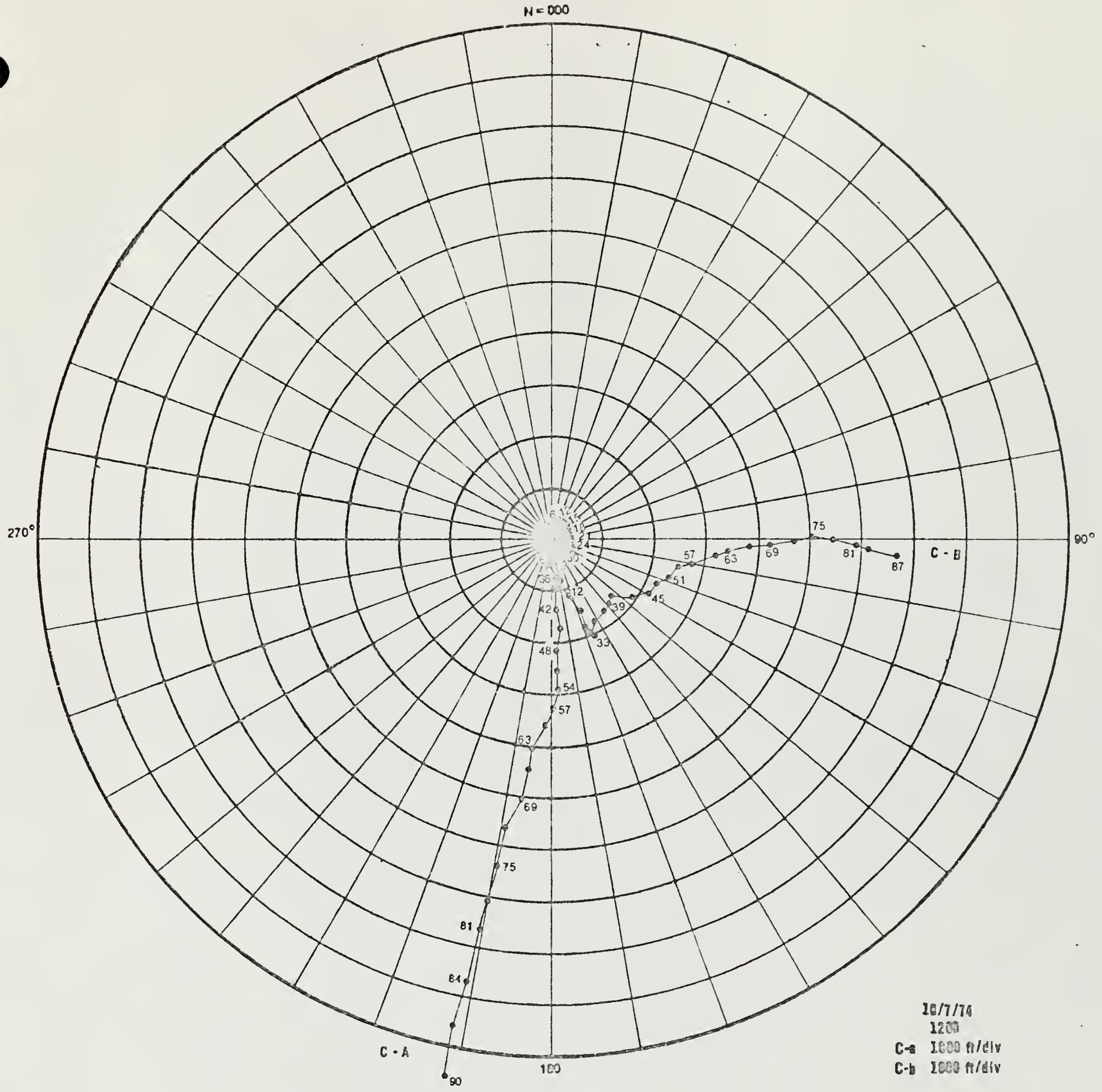


Figure C-11. Comparison of Pibal Soundings made at 0500 MST on 7 October 1974 over Tracts C-a and C-b



10/7/74
0800
C-a 1000 ft/div
C-b 1000 ft/div

Figure C-12. Comparison of Pibal Soundings made at 0800 MST on 7 October 1974 over Tracts C-a and C-b



10/7/74
1200
C-a 1000 ft/div
C-b 1000 ft/div

Figure C-13. Comparison of Pibal Soundings made at 1200 MST on 7 October 1974 over Tracts C-a and C-b

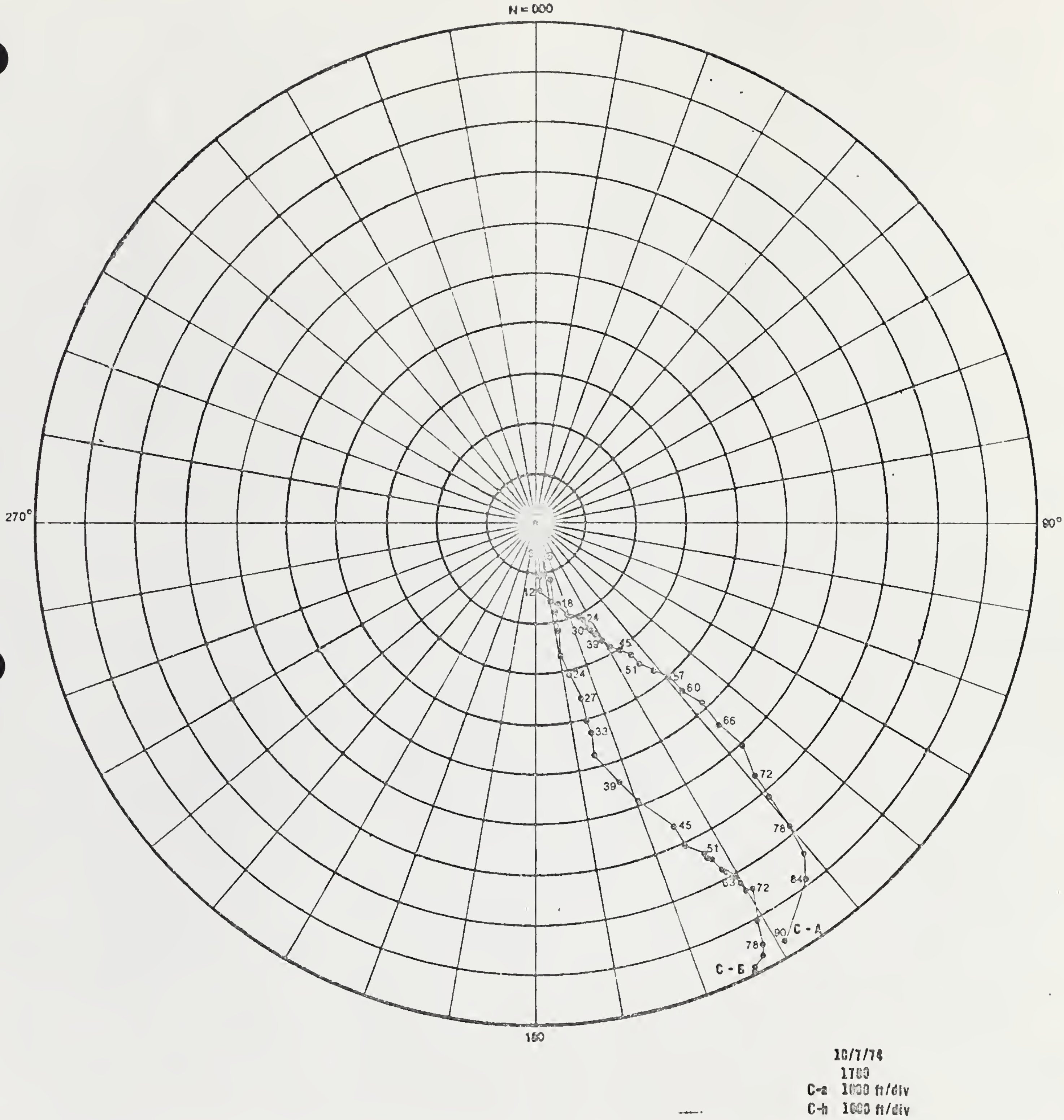
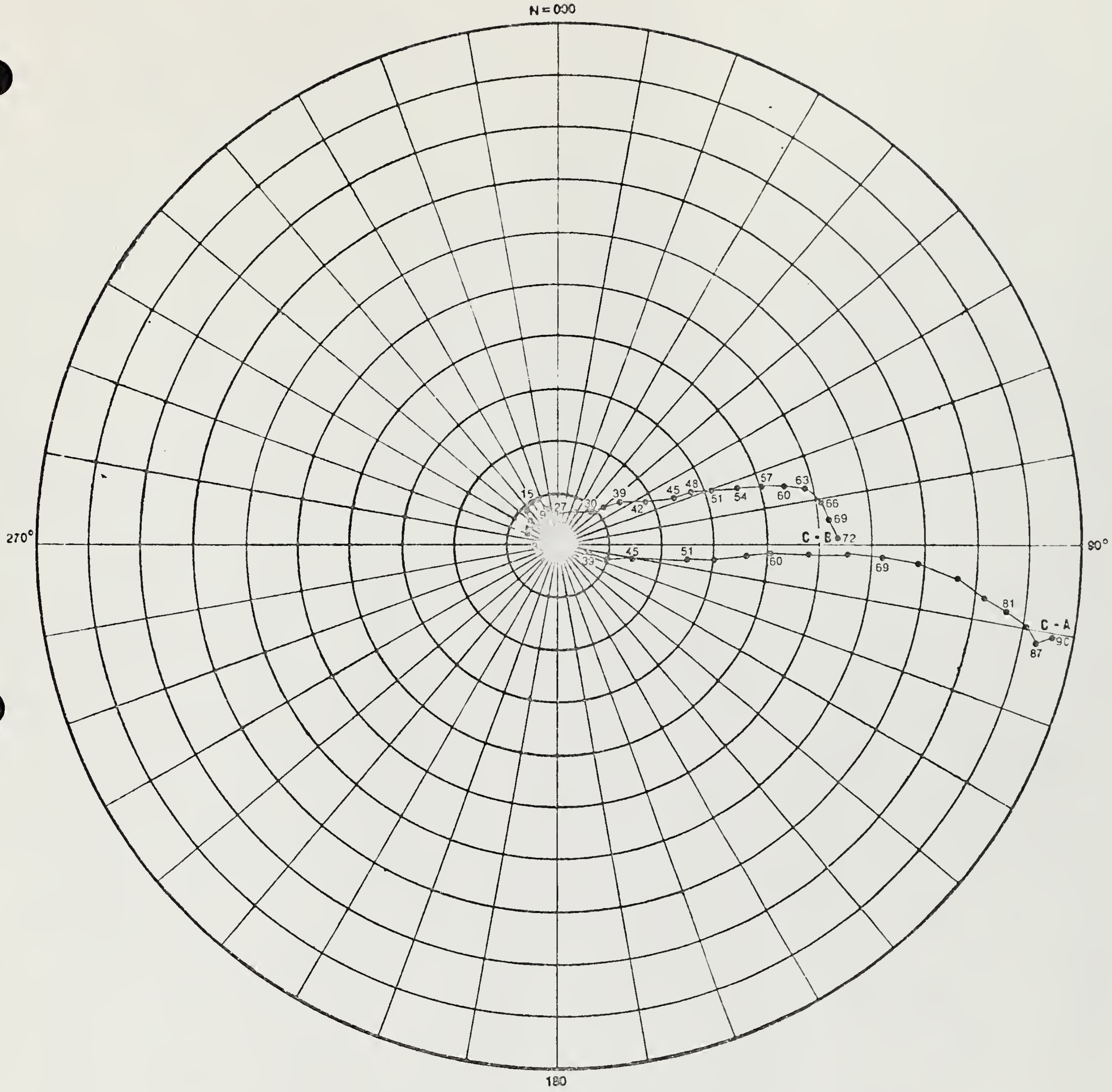


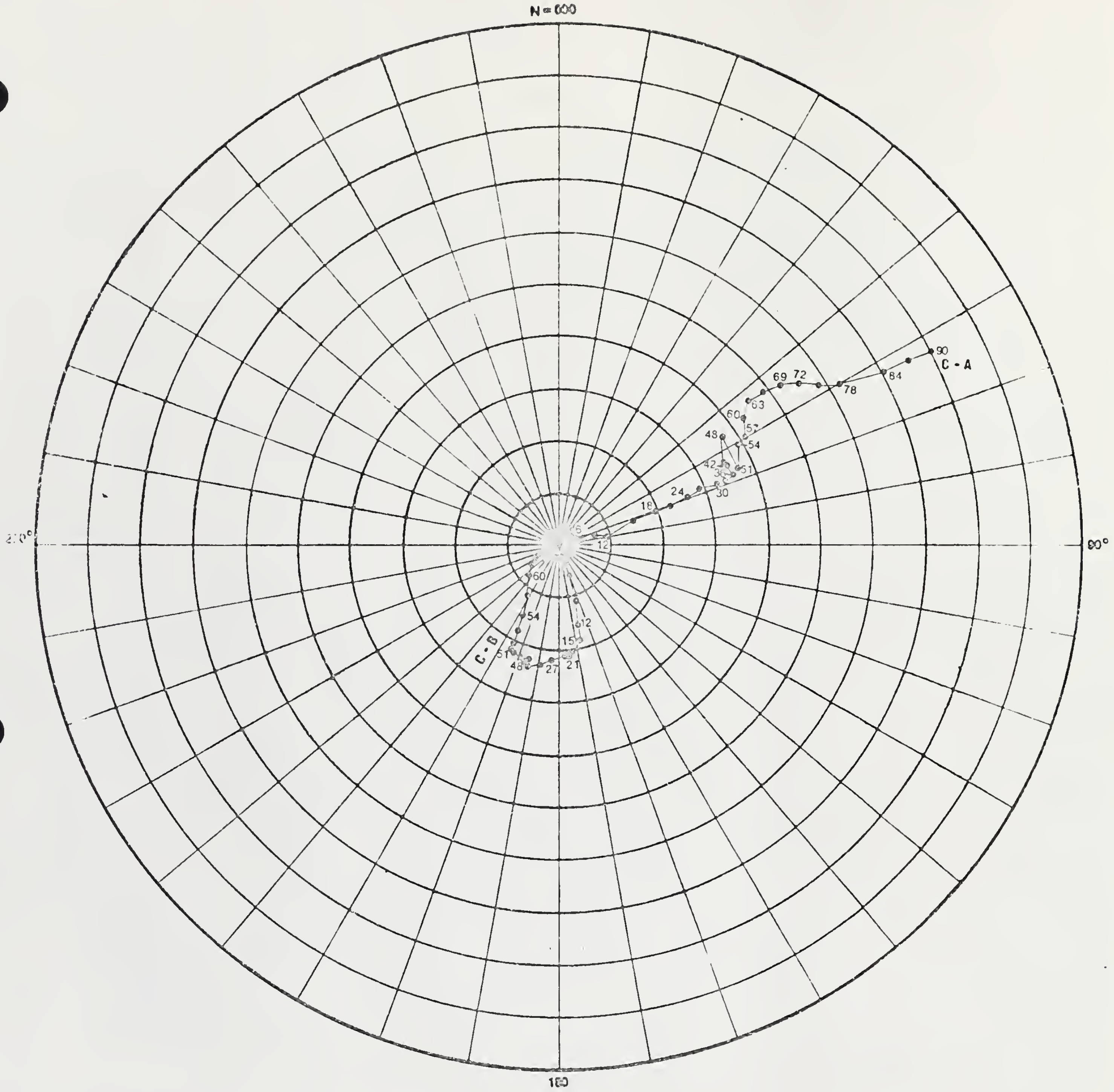
Figure C-14. Comparison of Pibal Soundings made at 1700 MST on 7 October 1974 over Tracts C-a and C-b



10/8/74
0800

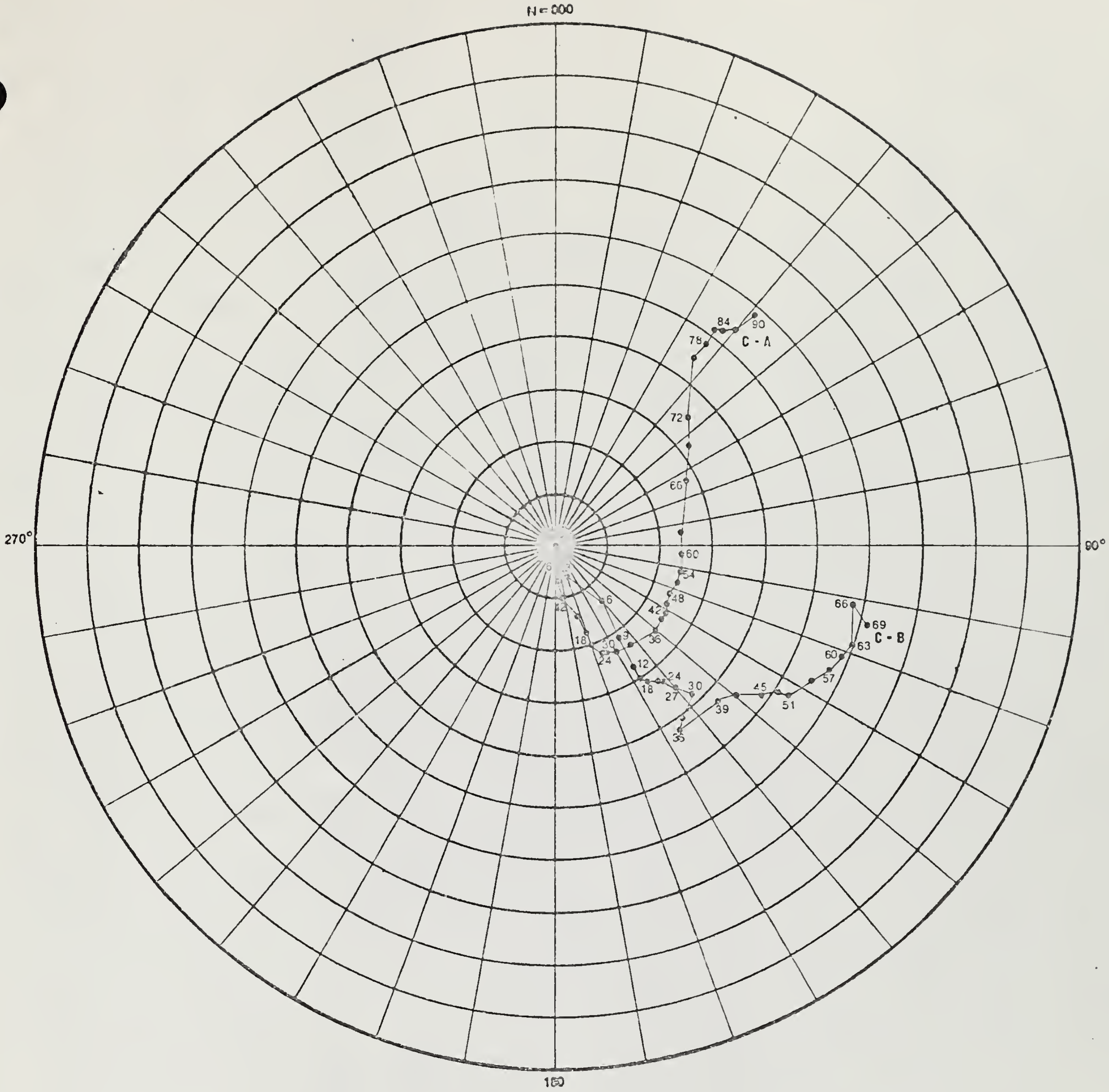
C-a 1000 ft/div
C-b 1000 ft/div

Figure C-15. Comparison of Pibal Soundings made at 0800 MST on 8 October 1974 over Tracts C-a and C-b



10/8/74
1200
C-a 1000 ft/div
C-b 1000 ft/div

Figure C-16. Comparison of Pibal Soundings made at 1200 MST on 8 October 1974 over Tracts C-a and C-b



10/8/74
1700
C-a 1000 ft/div
C-b 1000 ft/div

Figure C-17. Comparison of Pibal Soundings made at 1700 MST on 8 October 1974 over Tracts C-a and C-b

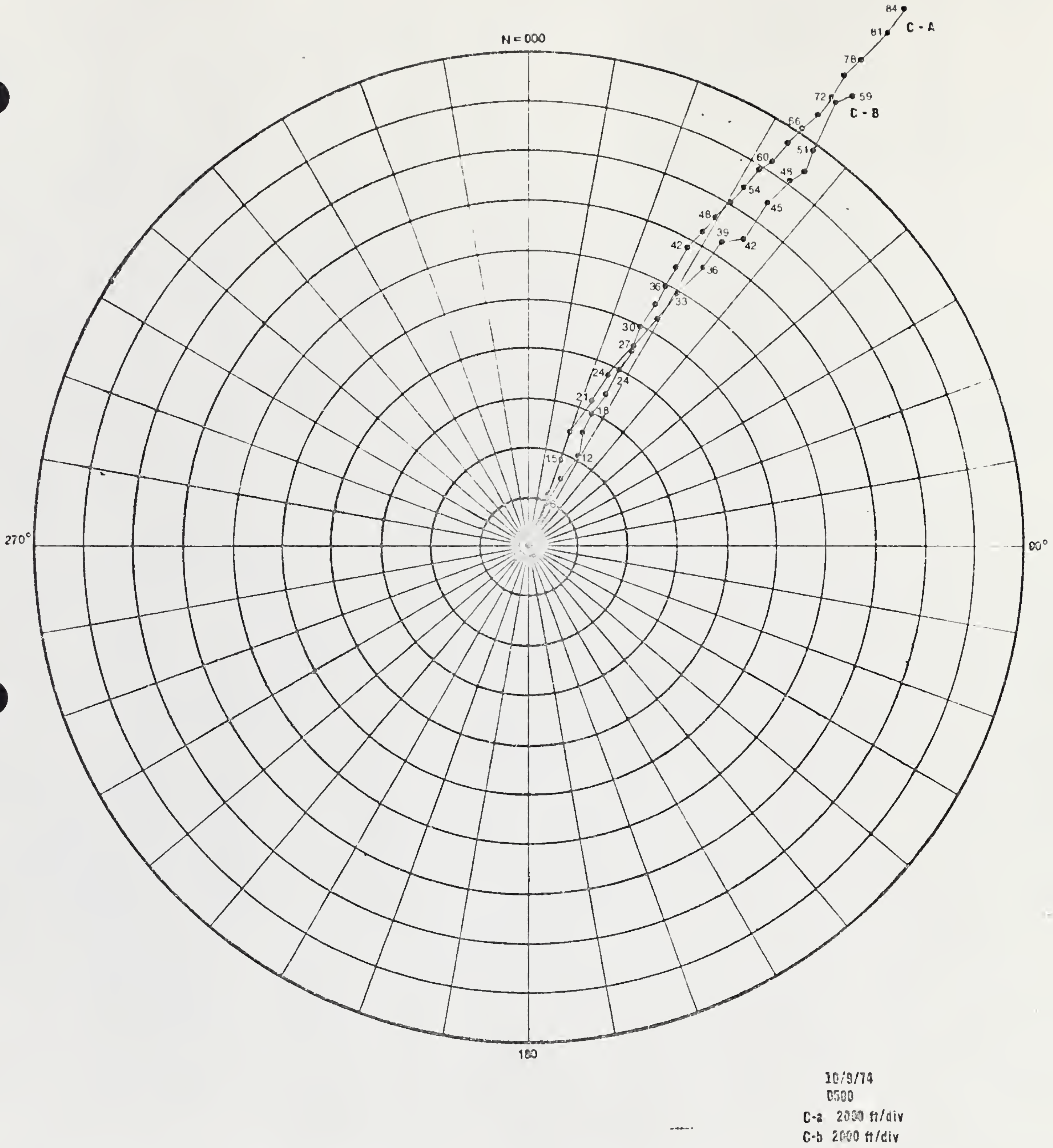


Figure C-18. Comparison of Pibal Soundings made at 0500 MST on 9 October 1974 over Tracts C-a and C-b

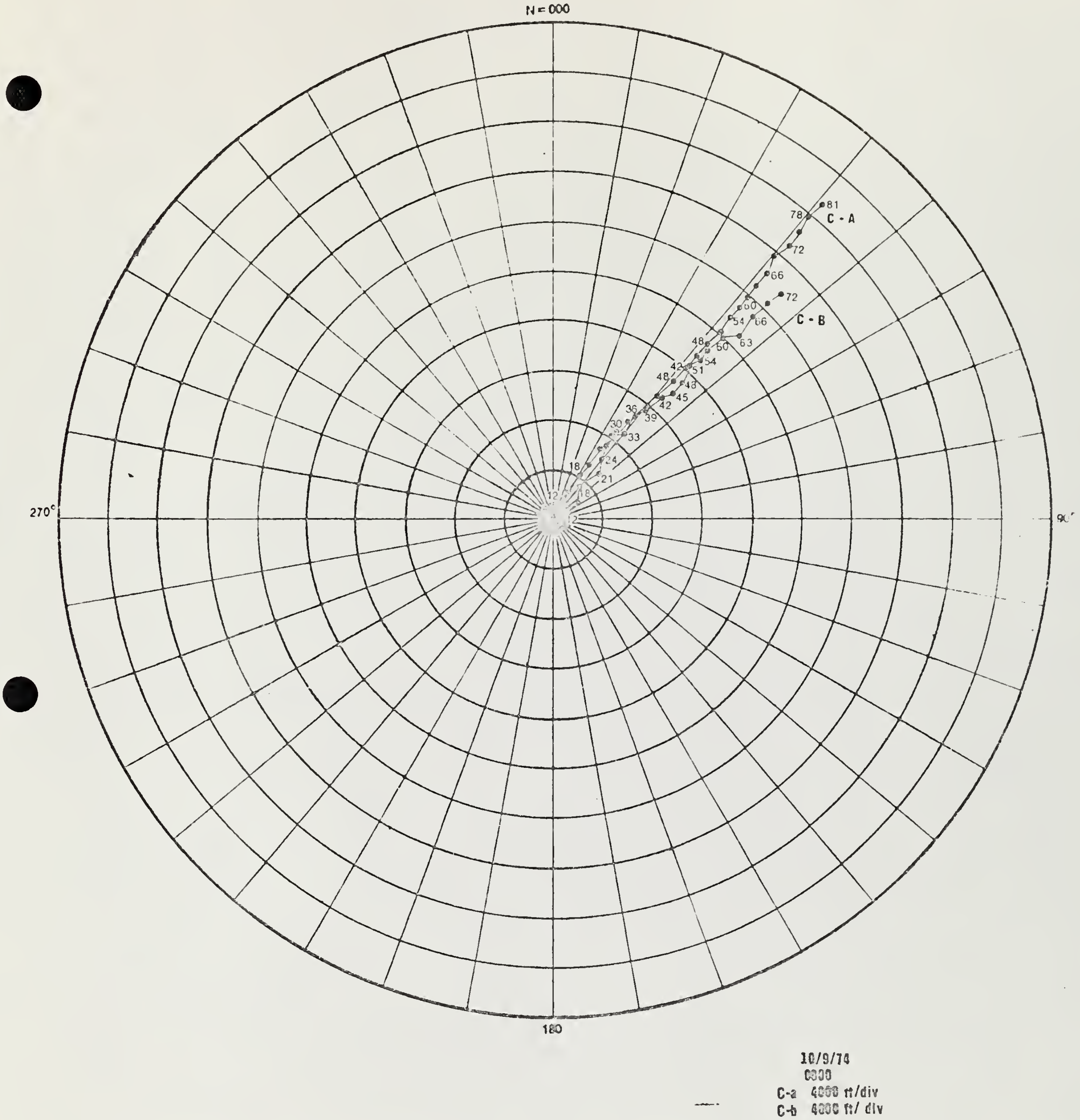


Figure C-19. Comparison of Pibal Soundings made at 0800 MST on 9 October 1974 over Tracts C-a and C-b

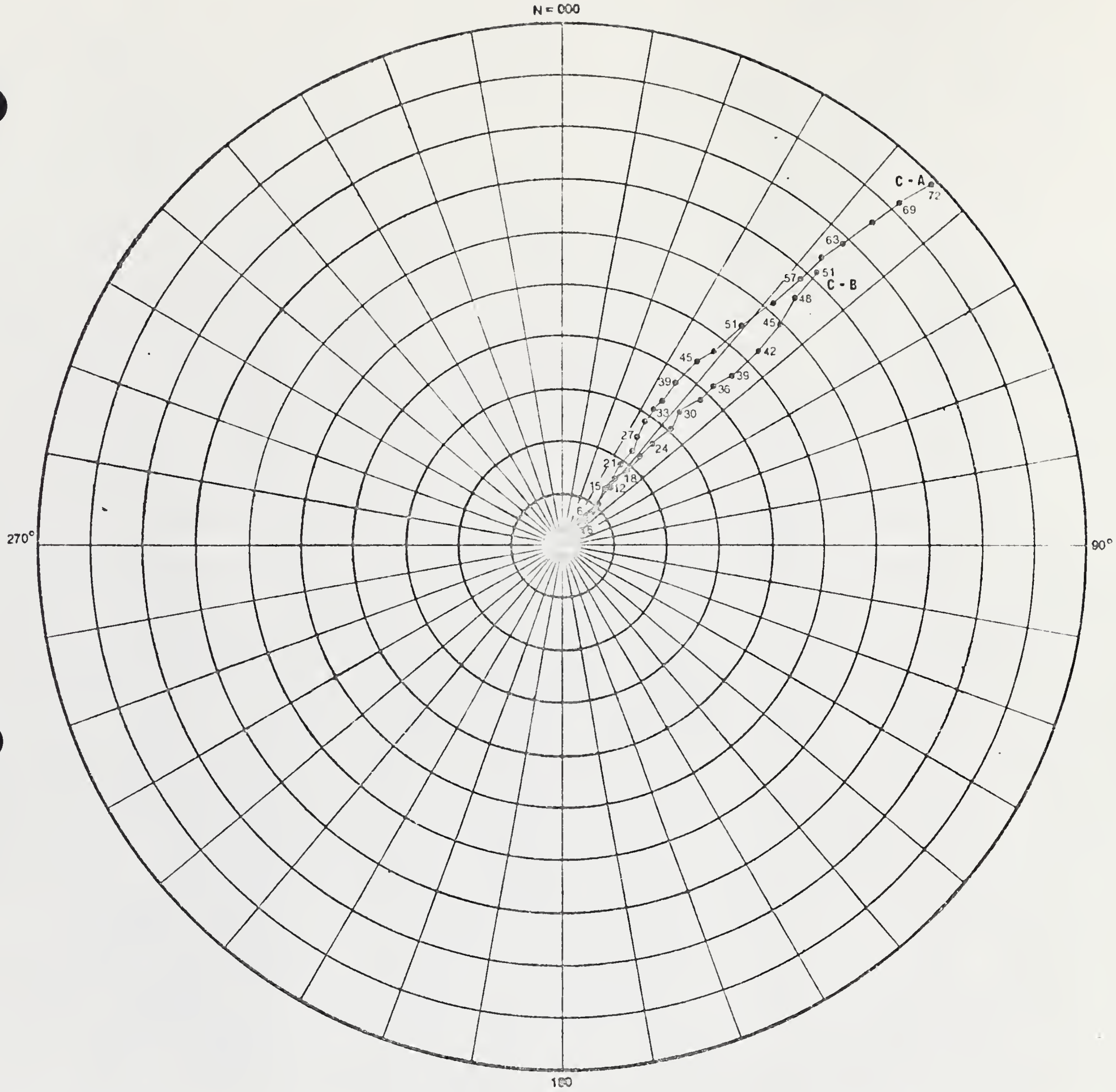


Figure C-20. Comparison of Pibal Soundings made at 1200 MST on 9 October 1974 over Tracts C-a and C-b

10/9/74
1200
C-a 4000 ft/div
C-b 2000 ft/div

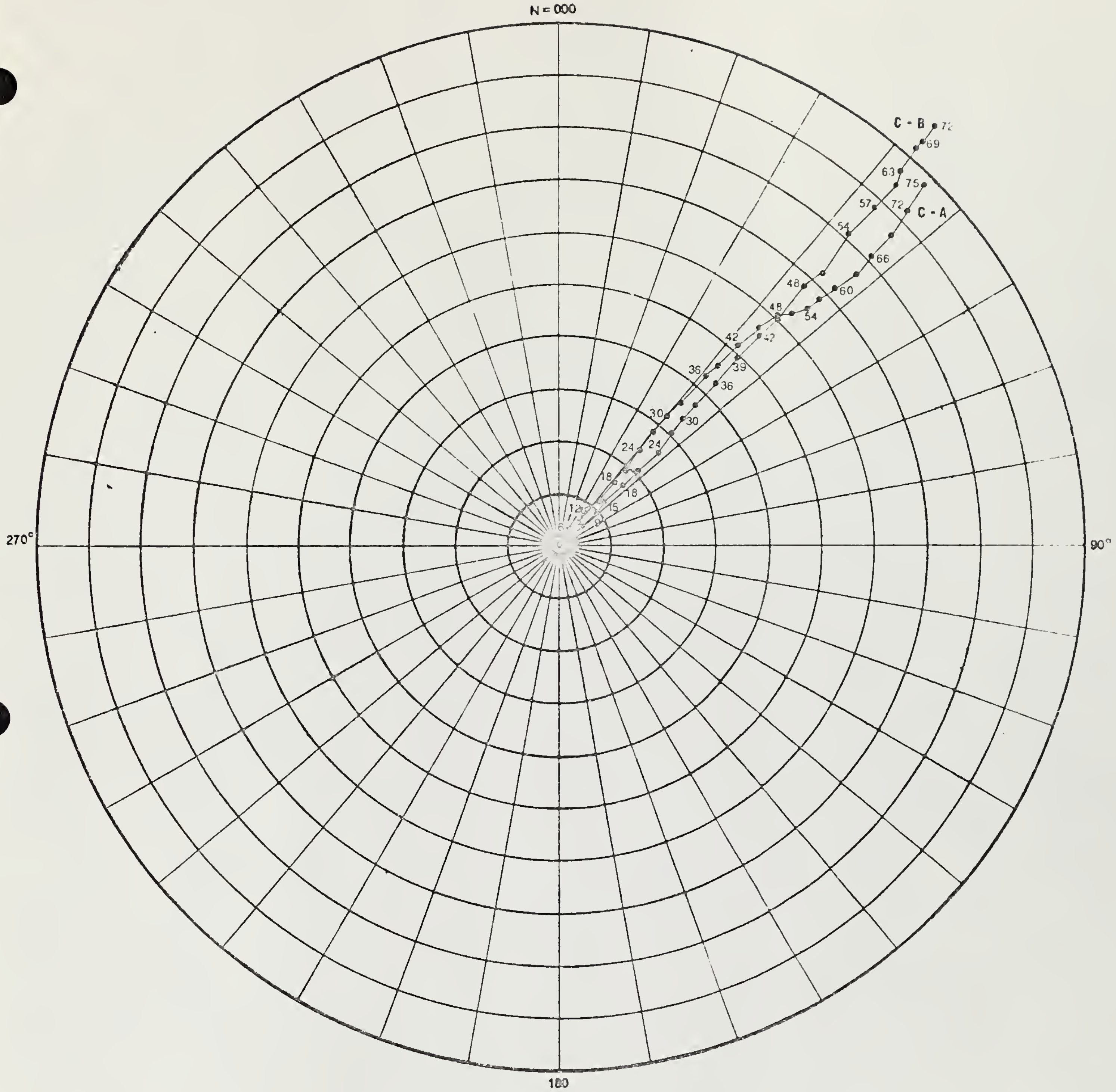


Figure C-21. Comparison of Pibal Soundings made at 1700 MST on 9 October 1974 over Tracts C-a and C-b

10/9/74
1700
C-a 2000 ft/div
C-b 4000 ft/div

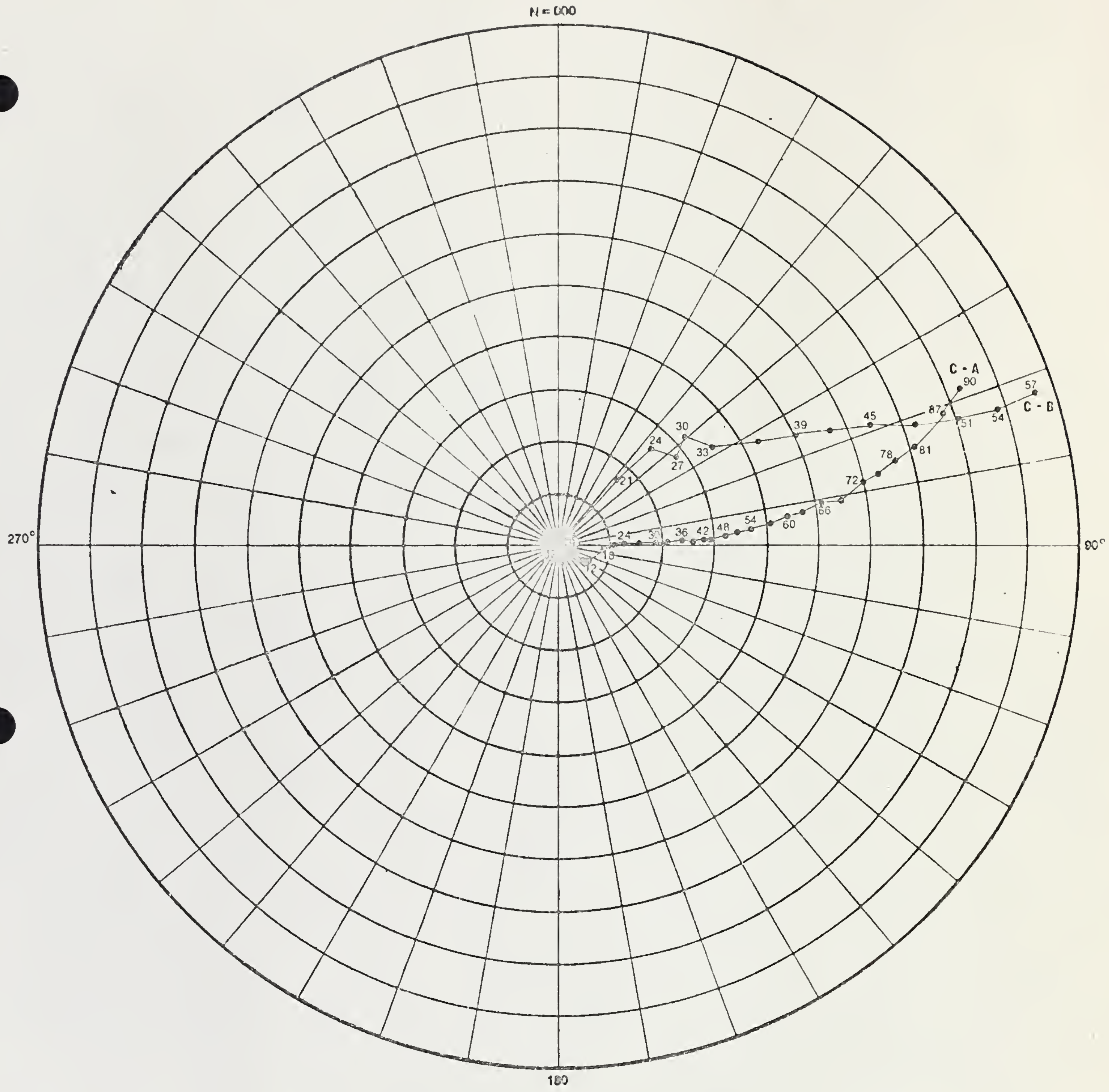


Figure C-22. Comparison of Pibal Soundings made at 0500 MST on 10 October 1974 over Tracts C-a and C-b

10/10/74
0500
C-a 4000 ft/div
C-b 1000 ft/div

TOSCO Trace Volatile Metals Data (Ref 4)

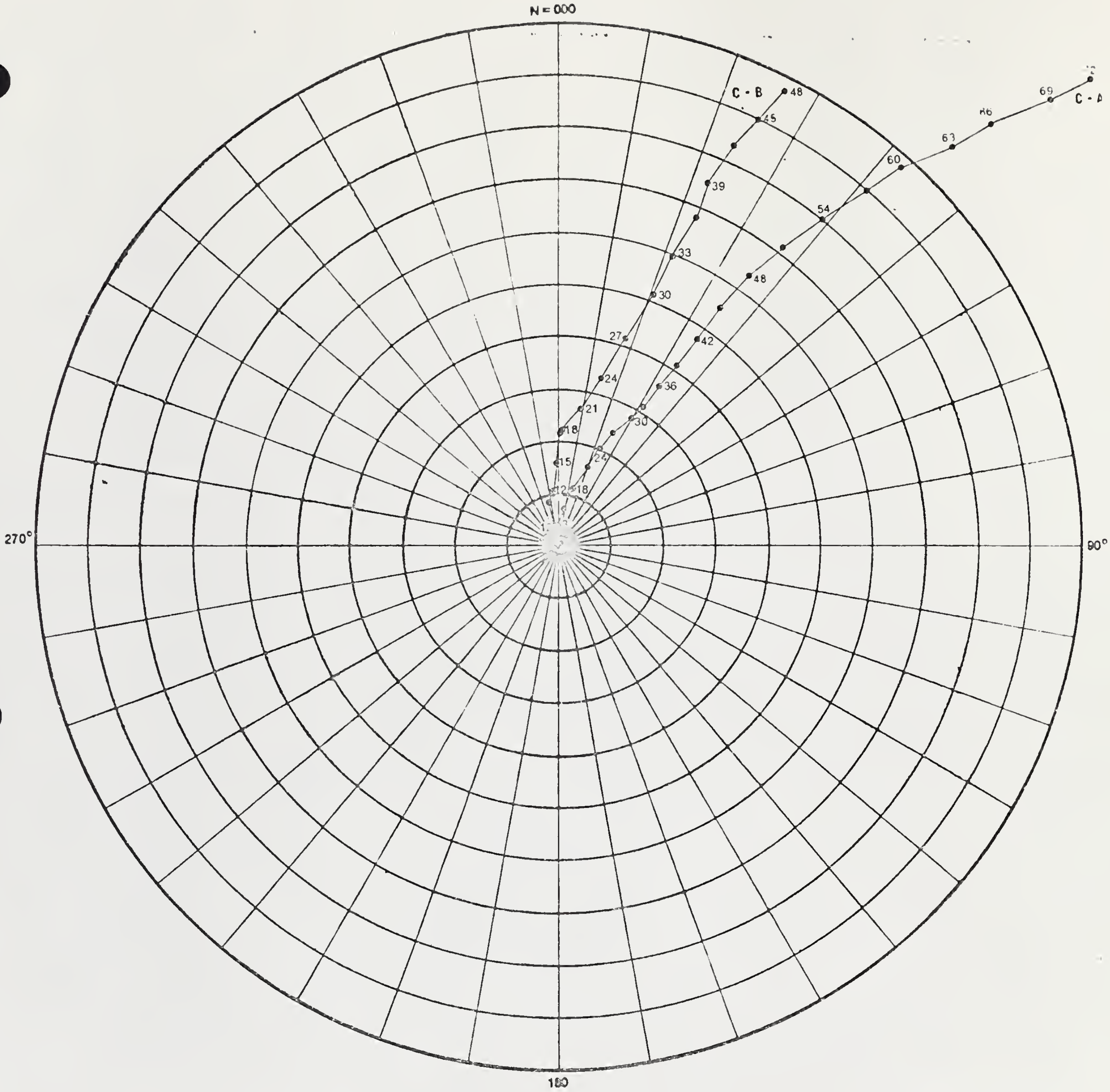


Figure C-23. Comparison of Pibal Soundings made at 0800 MST on 10 October 1974 over Tracts C-a and C-b

10/10/74
0800
C-a 1000 ft/div
C-b 1000 ft/div

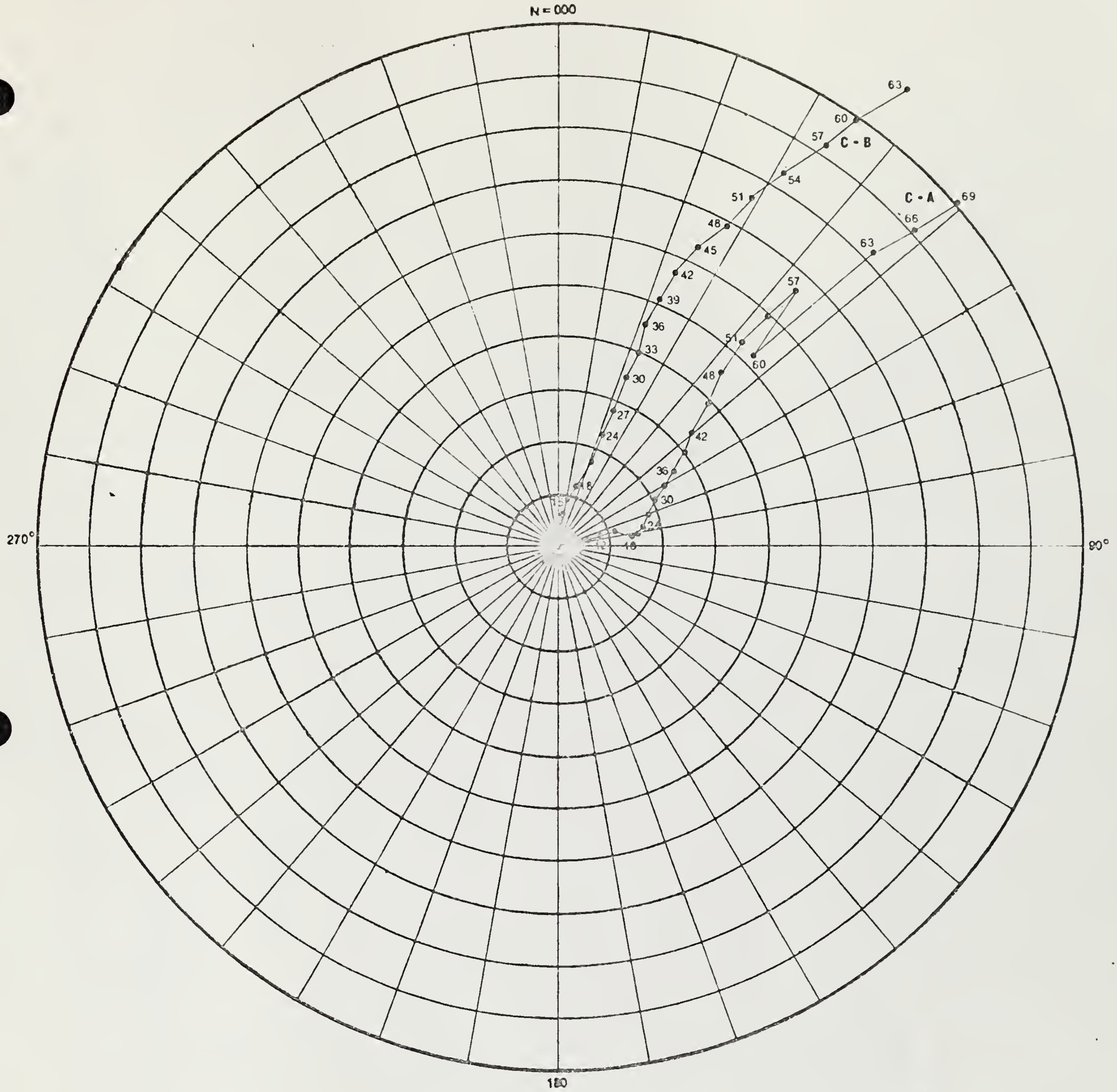


Figure C-24. Comparison of Pibal Soundings made at 1200 MST on 10 October 1974 over Tracts C-a and C-b

10/10/74
1200
C-a 1000 ft/div
C-b 1000 ft/div

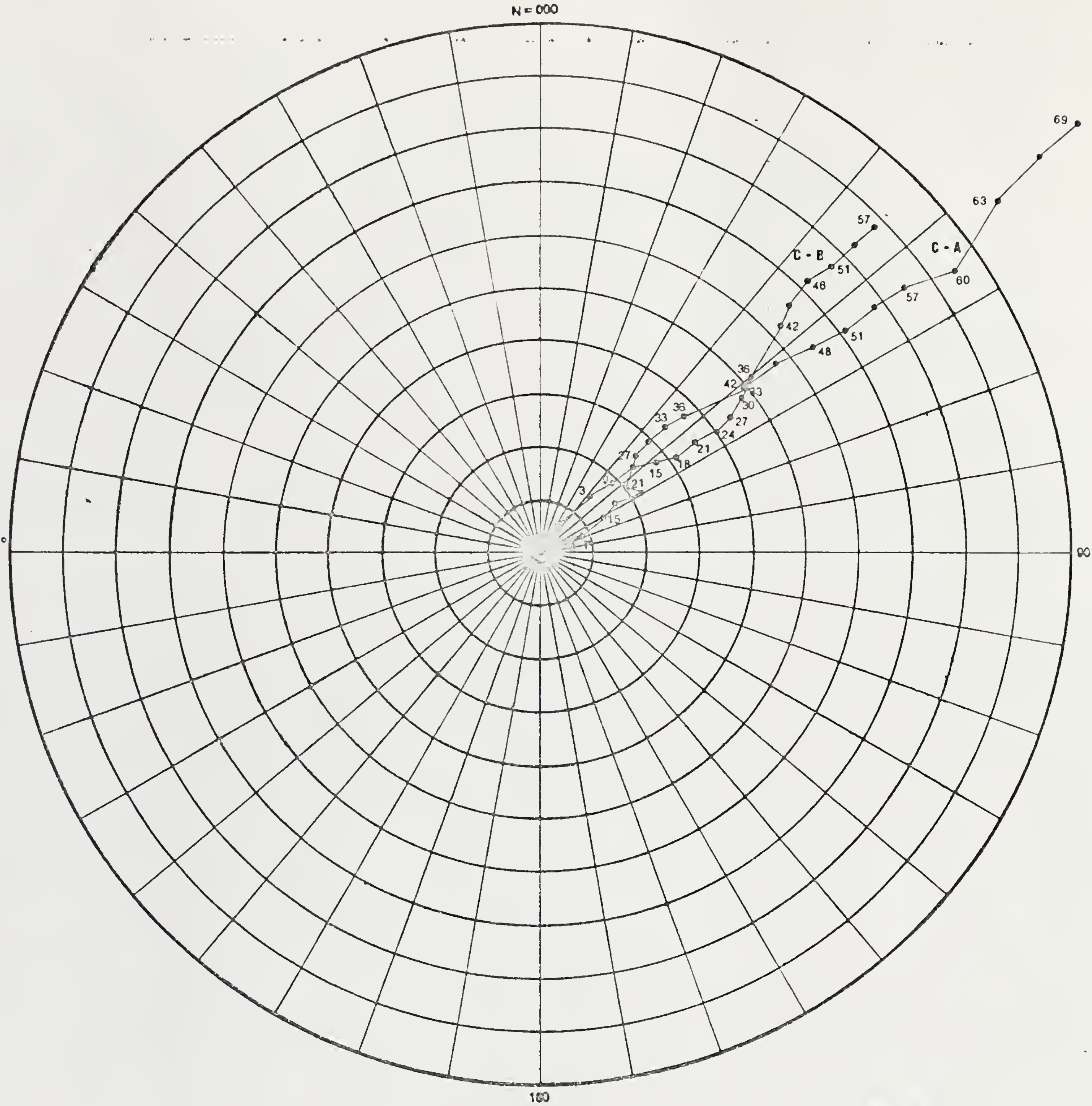


Figure C-25. Comparison of Pibal Soundings made at 1700 MST on 10 October 1974 over Tracts C-a and C-b

10/10/74
1700
C-a 1000 ft/div
C-b 1000 ft/div

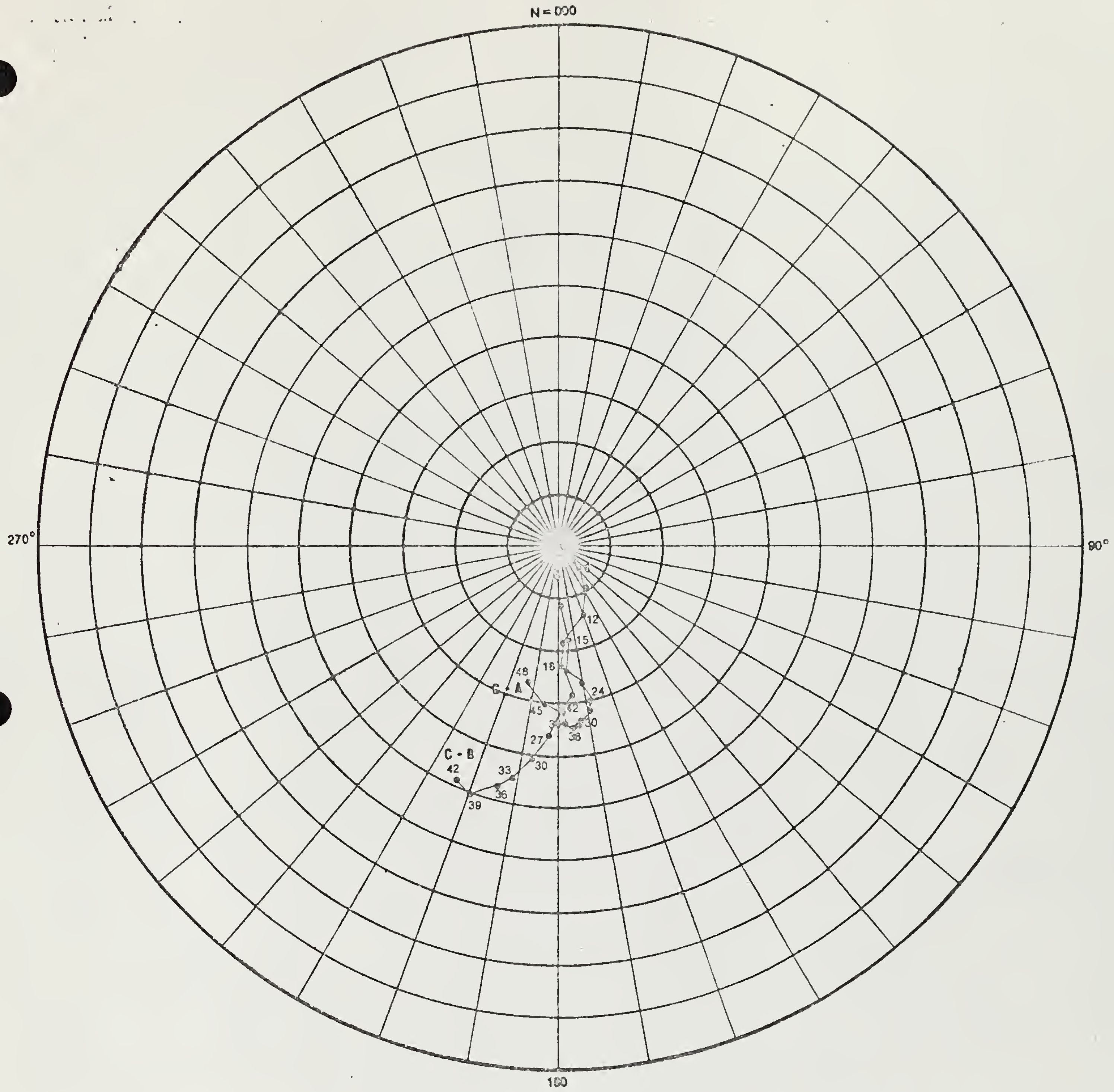


Figure C-26. Comparison of Pibal Soundings made at 0500 on 11 October 1974 over Tracts C-a and C-b

10/11/74
0500
C-a 1000 ft/div
C-b 1000 ft/div

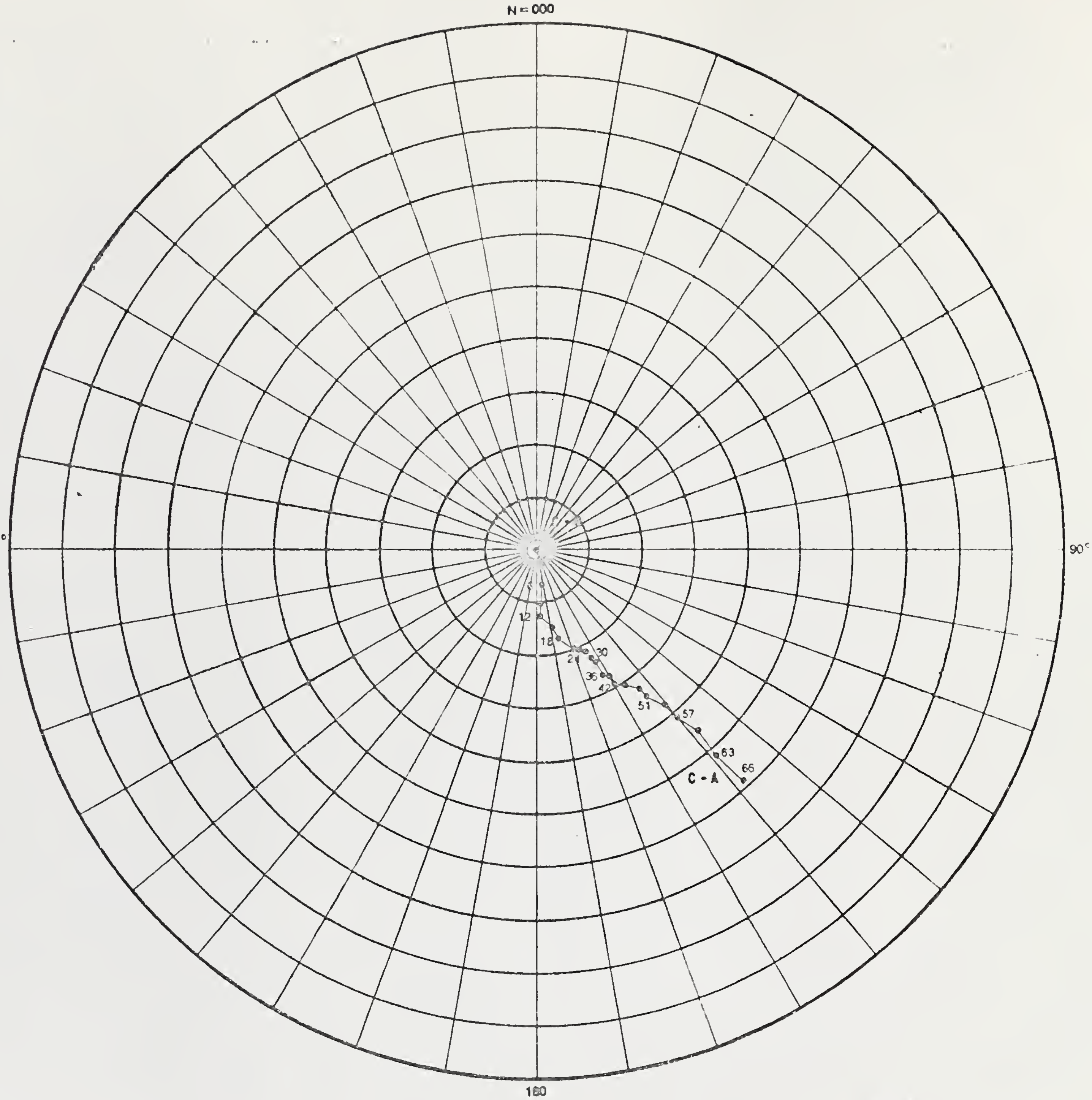


Figure C-27. Comparison of Pibal Soundings made at 0800 MST on 11 October 1974 over Tracts C-a and C-b

10/11/74
0800
C-a 1000 ft/div
C-b 1000 ft/div

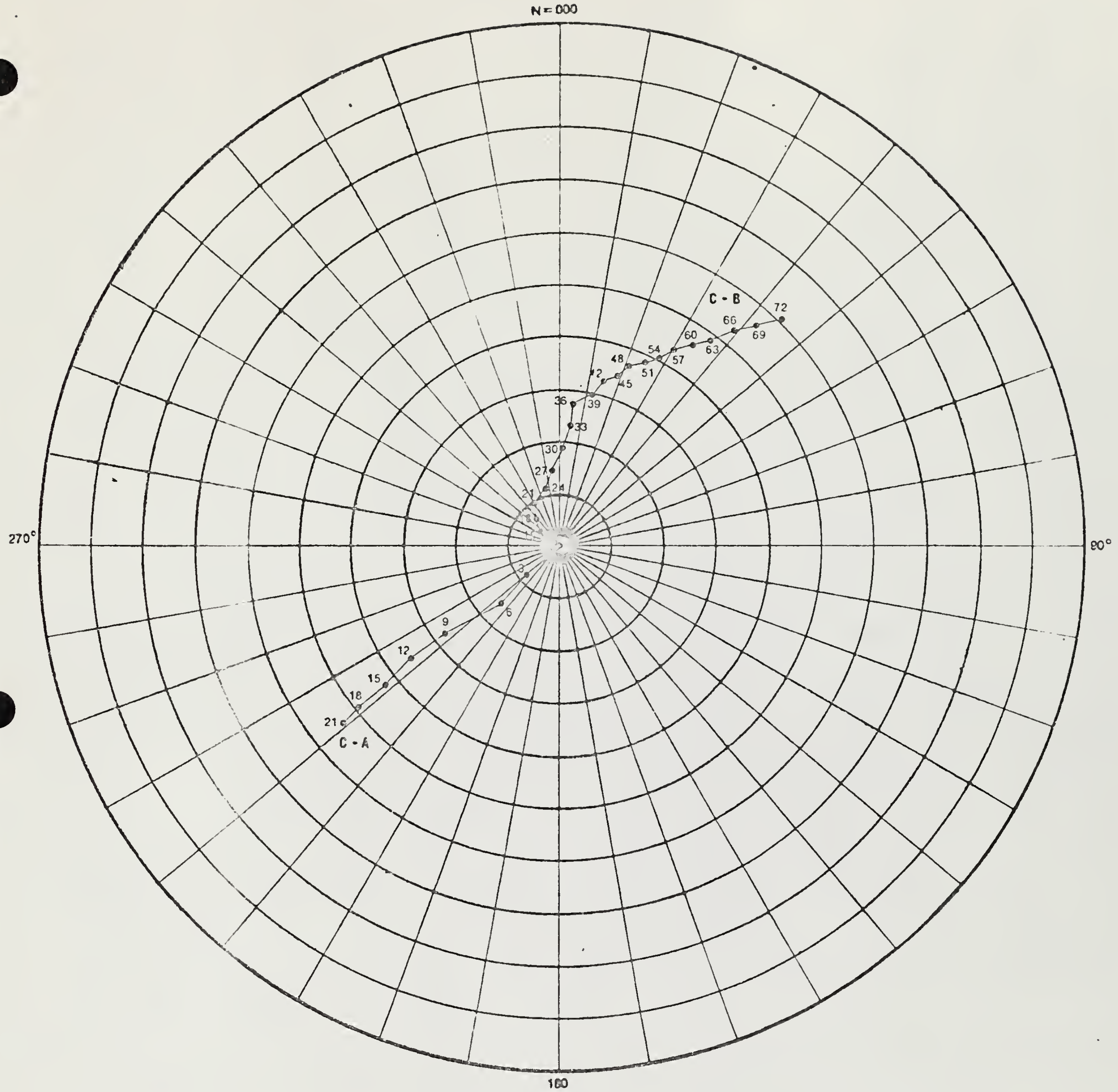


Figure C-28. Comparison of Pibal Soundings made at 1200 MST on 11 October 1974 over Tracts C-a and C-b

10/11/74
1200
C-a 200 ft/div
C-b 2000 ft/div

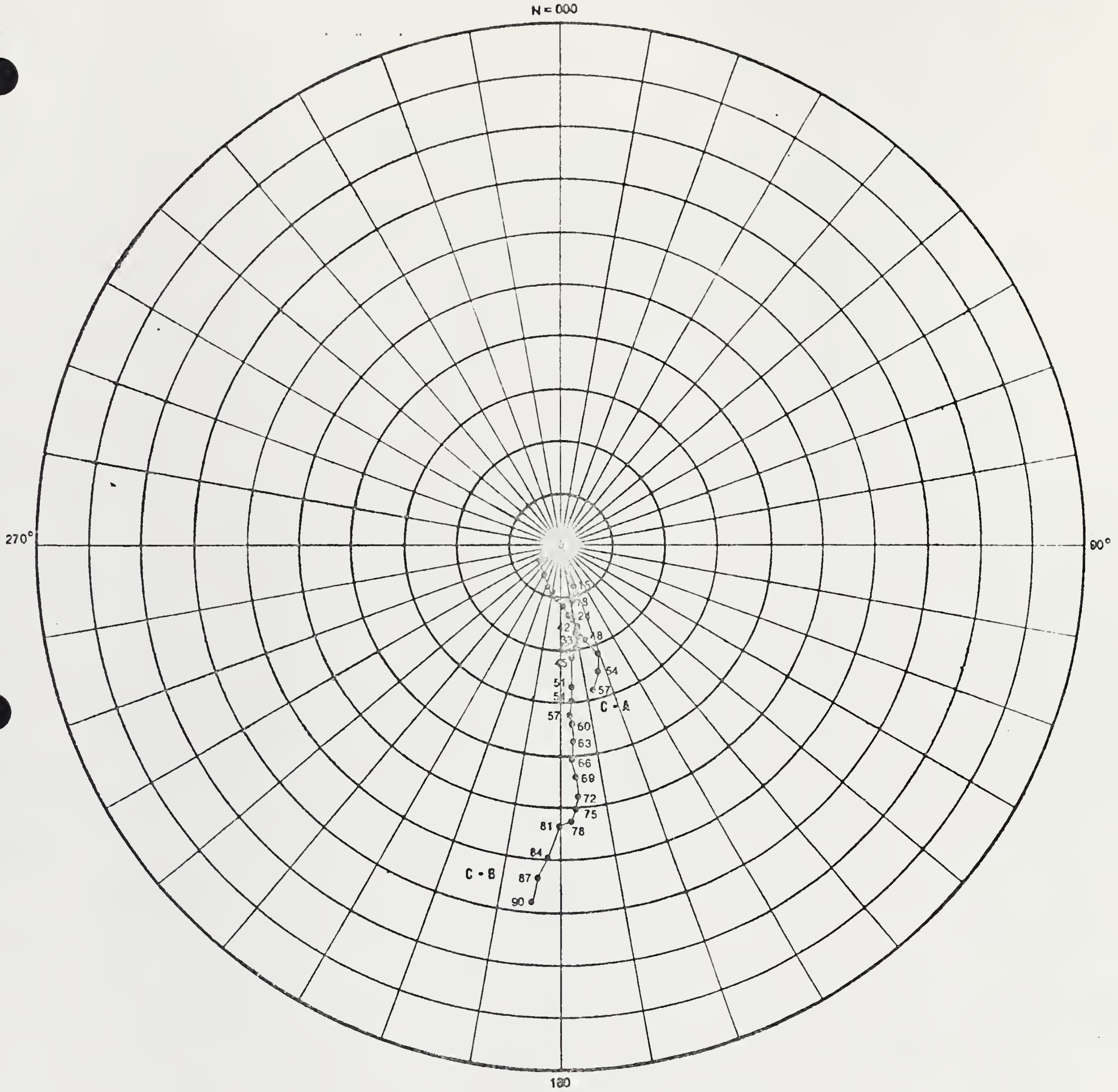


Figure C-29. Comparison of Pibal Soundings made at 1200 MST on 13 October 1974 over Tracts C-a and C-b

10/13/74
1200
C-a 2000 ft/div
C-b 2000 ft/div

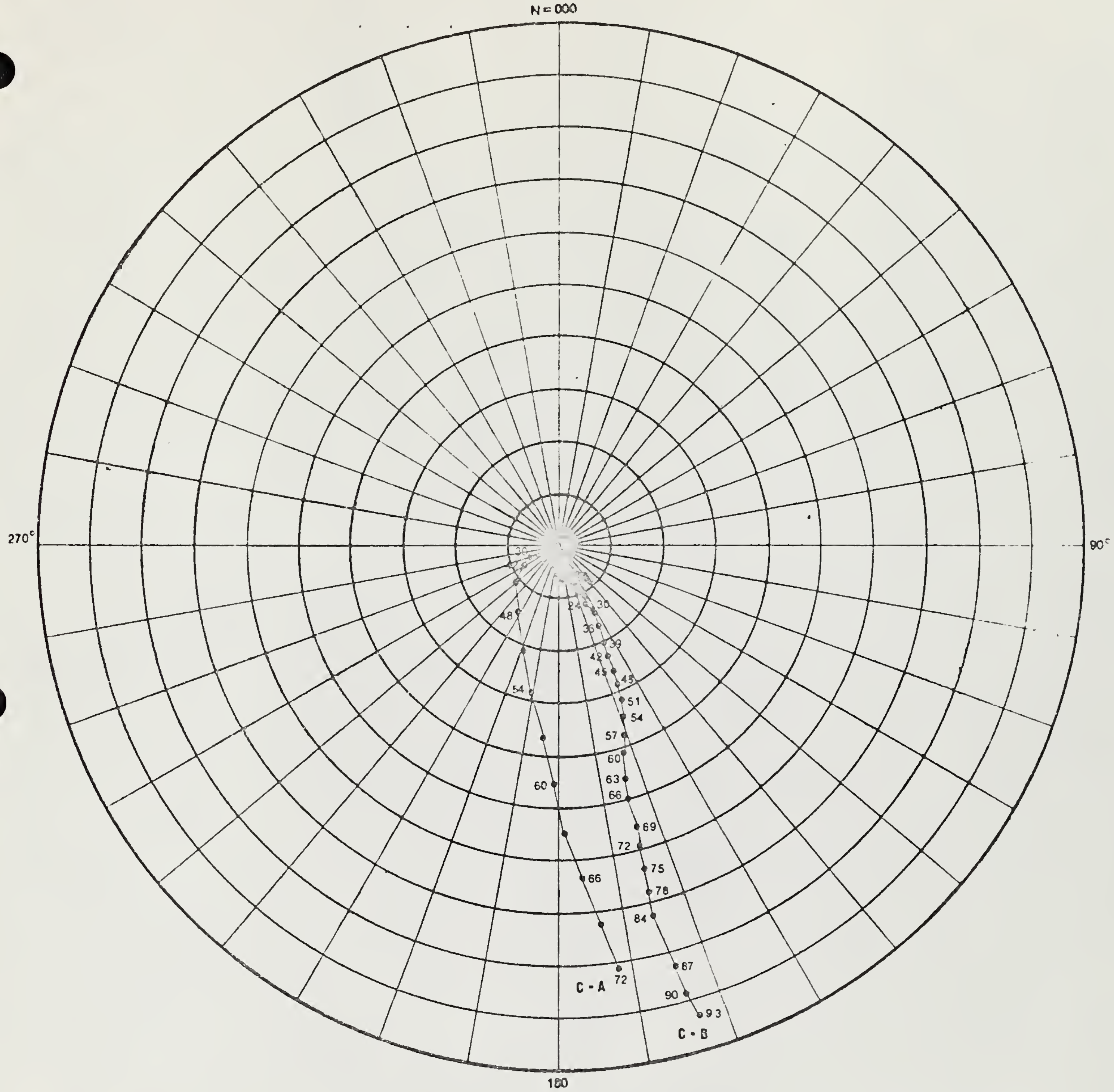


Figure C-30. Comparison of Pibal Soundings made at 1700 MST on 13 October 1974 over Tracts C-a and C-b

10/13/74
1700
C-a 1000 ft/div
C-b 2000 ft/div

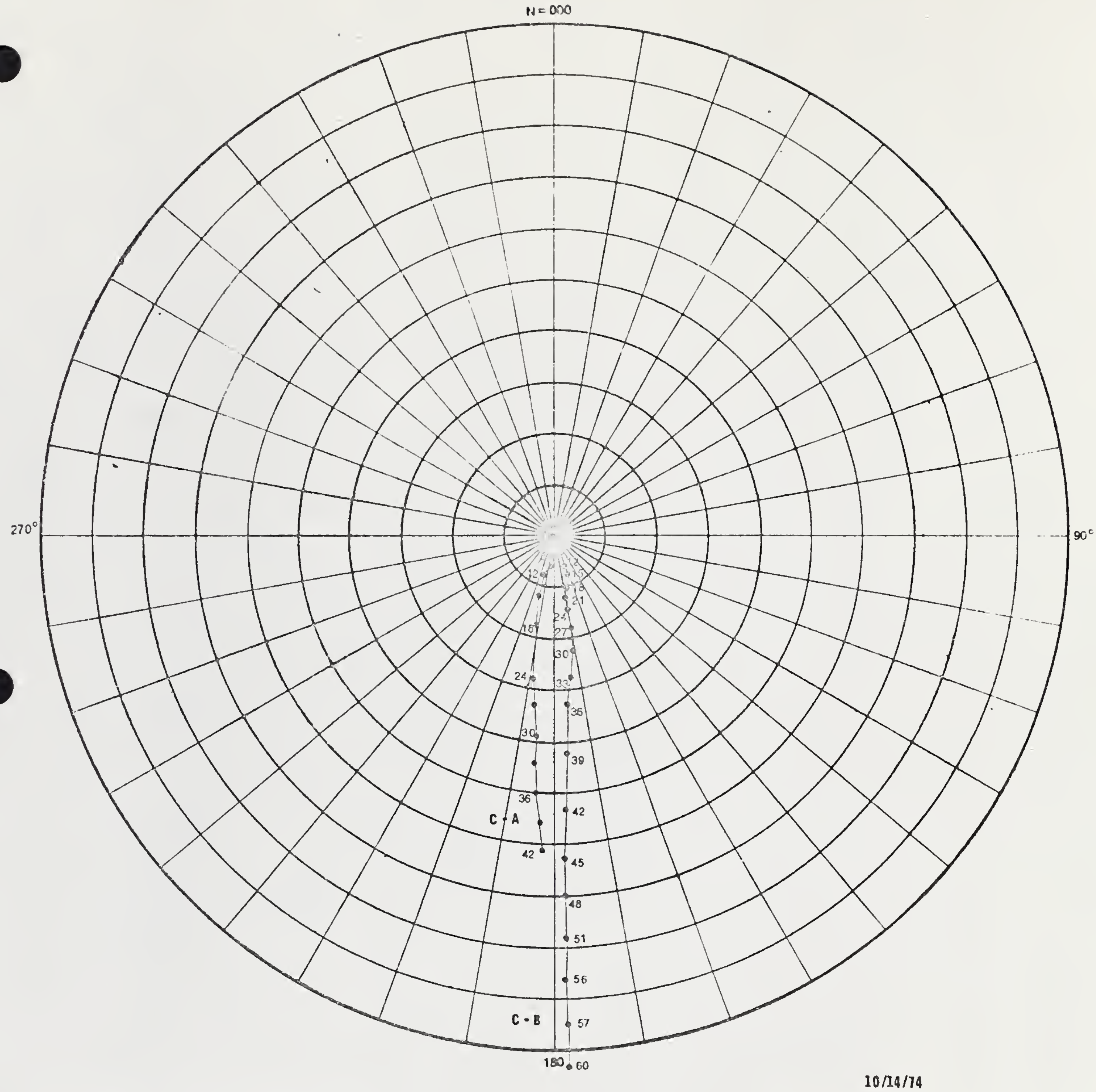


Figure C-31. Comparison of Pibal Soundings made at 0500 MST on 14 October 1974 over Tracts C-a and C-b

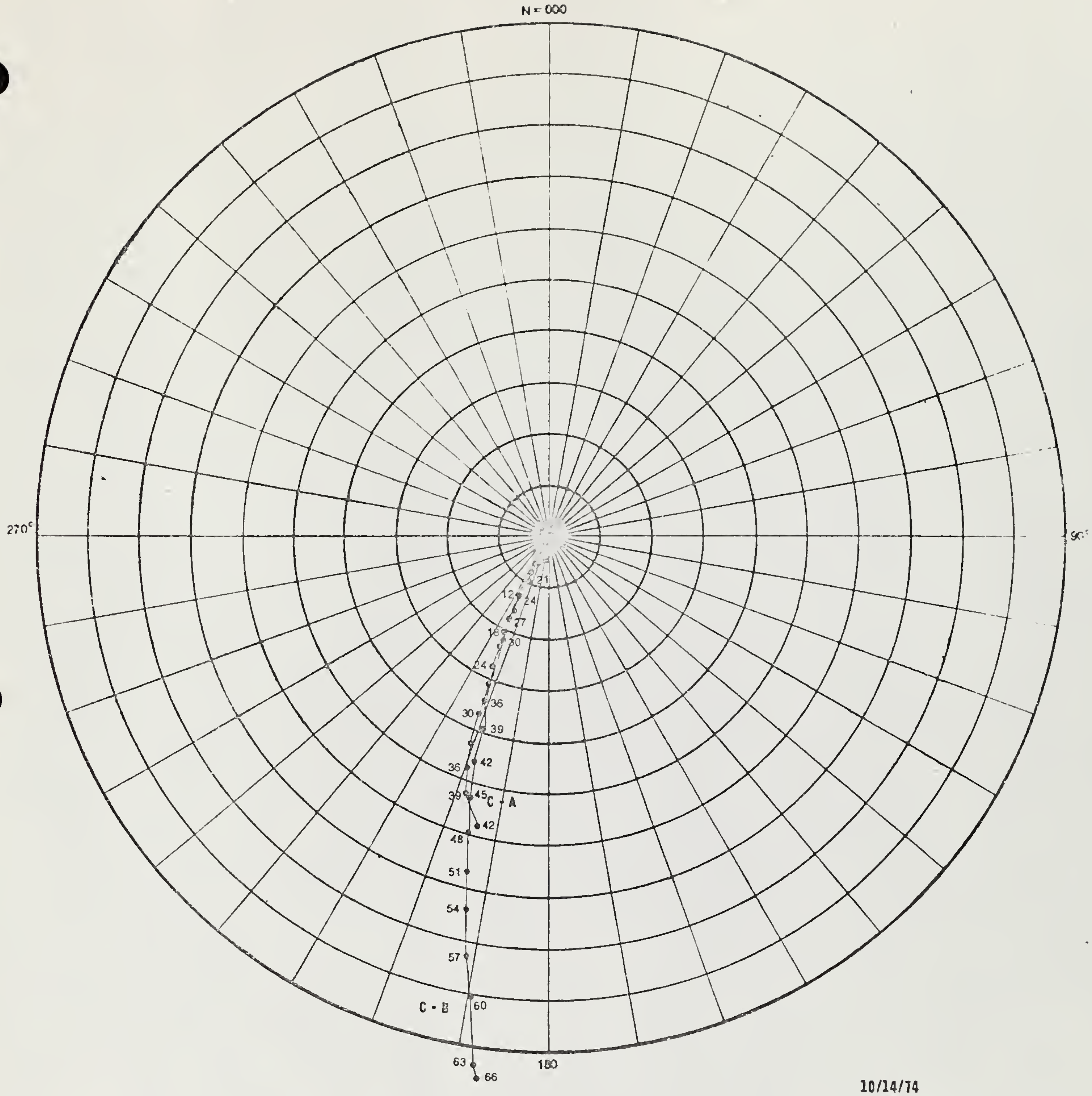


Figure C-32. Comparison of Pibal Soundings made at 0800 MST on 14 October 1974 over Tracts C-a and C-b

10/14/74
0800
C-a 1000 ft/div
C-b 2000 ft/div

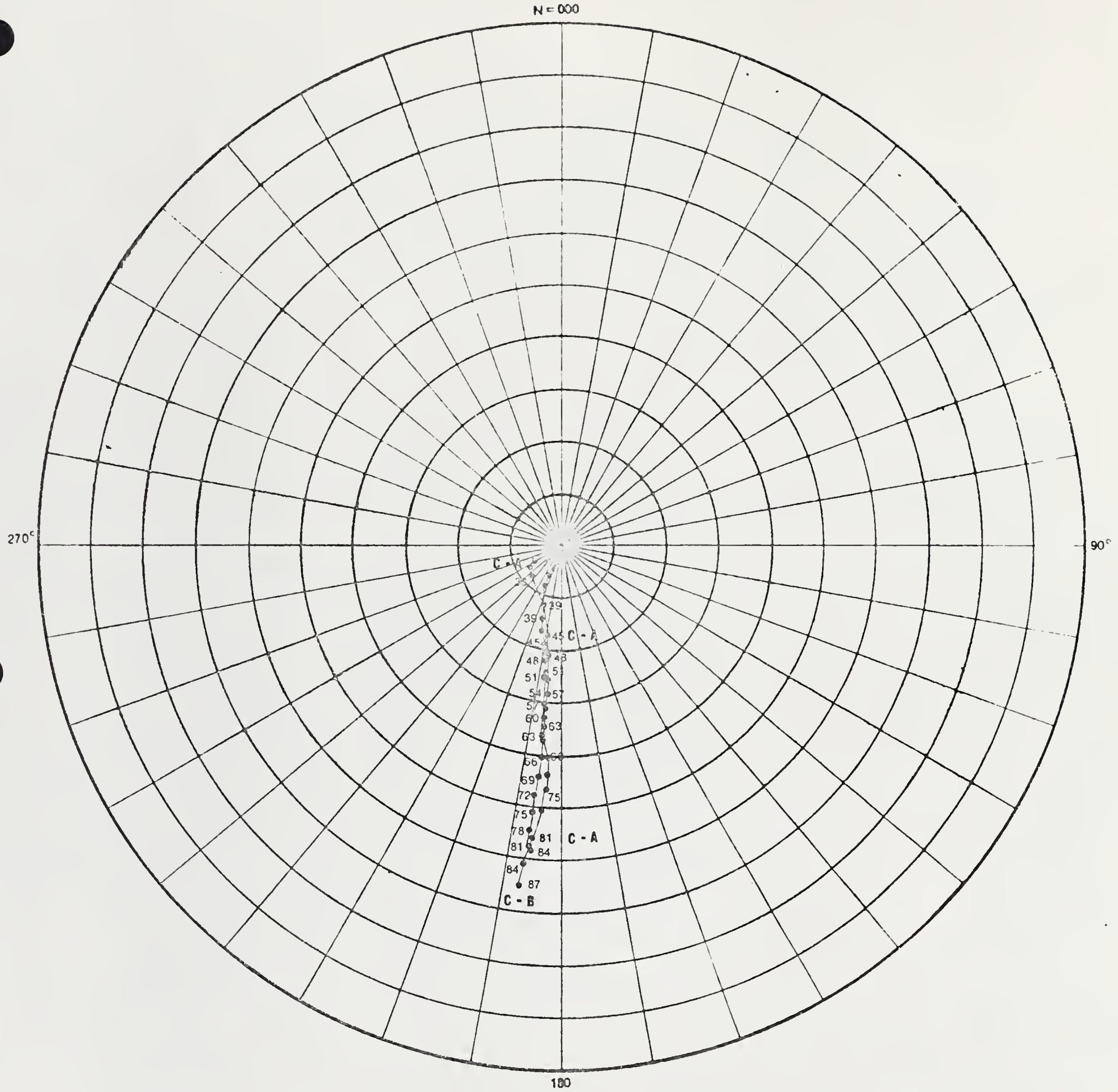


Figure C-33. Comparison of Pibal Soundings made at 1200 MST on 14 October 1974 over Tracts C-a and C-b

10/14/74
1200
C-a 4000 ft/div
C-b 4000 ft/div

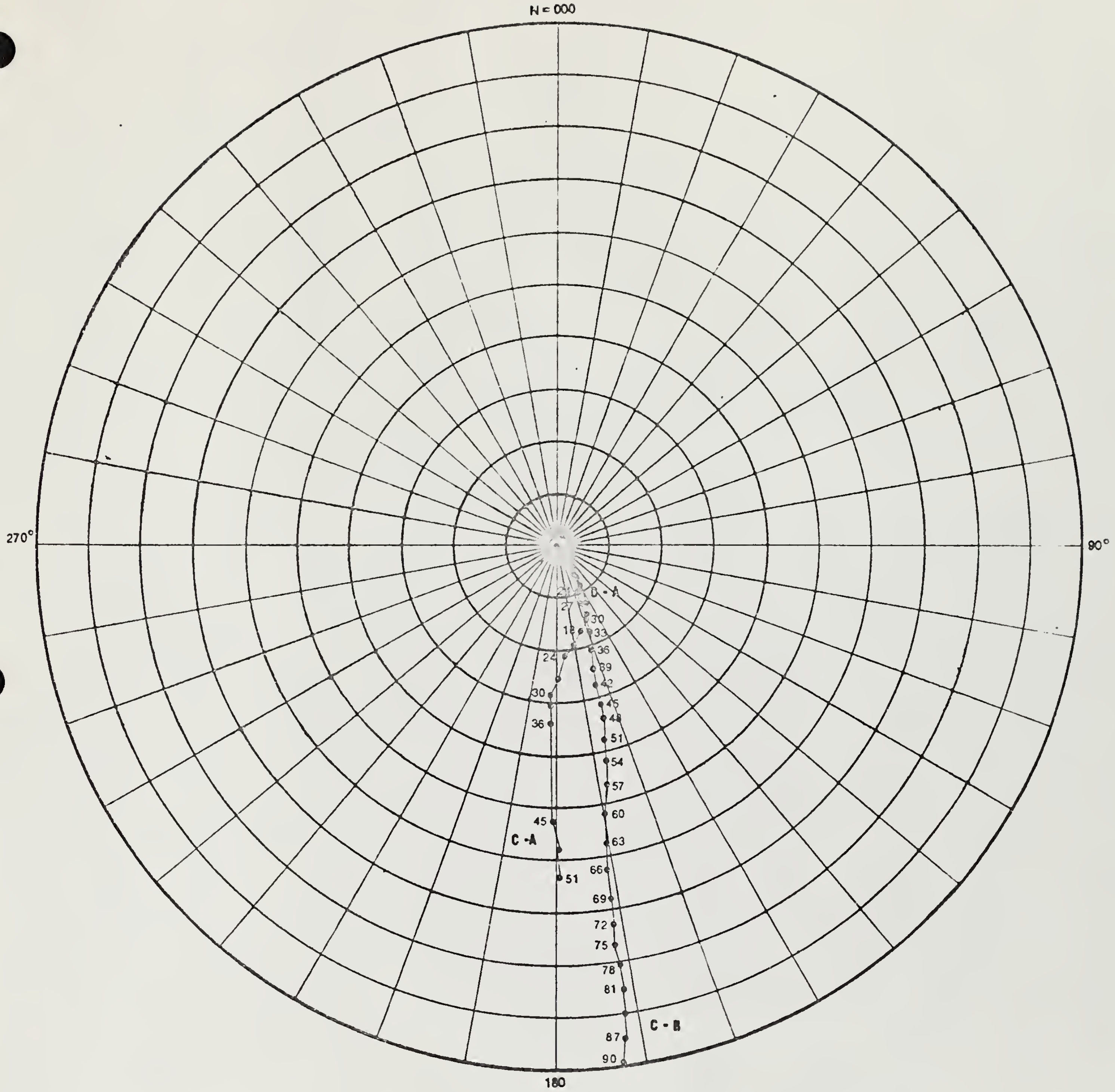


Figure C-34. Comparison of Pibal Soundings made at 1700 MST on 14 October 1974 over Tracts C-a and C-b

10/14/74
1700
C-a 1000 ft/div
C-b 2000 ft/div

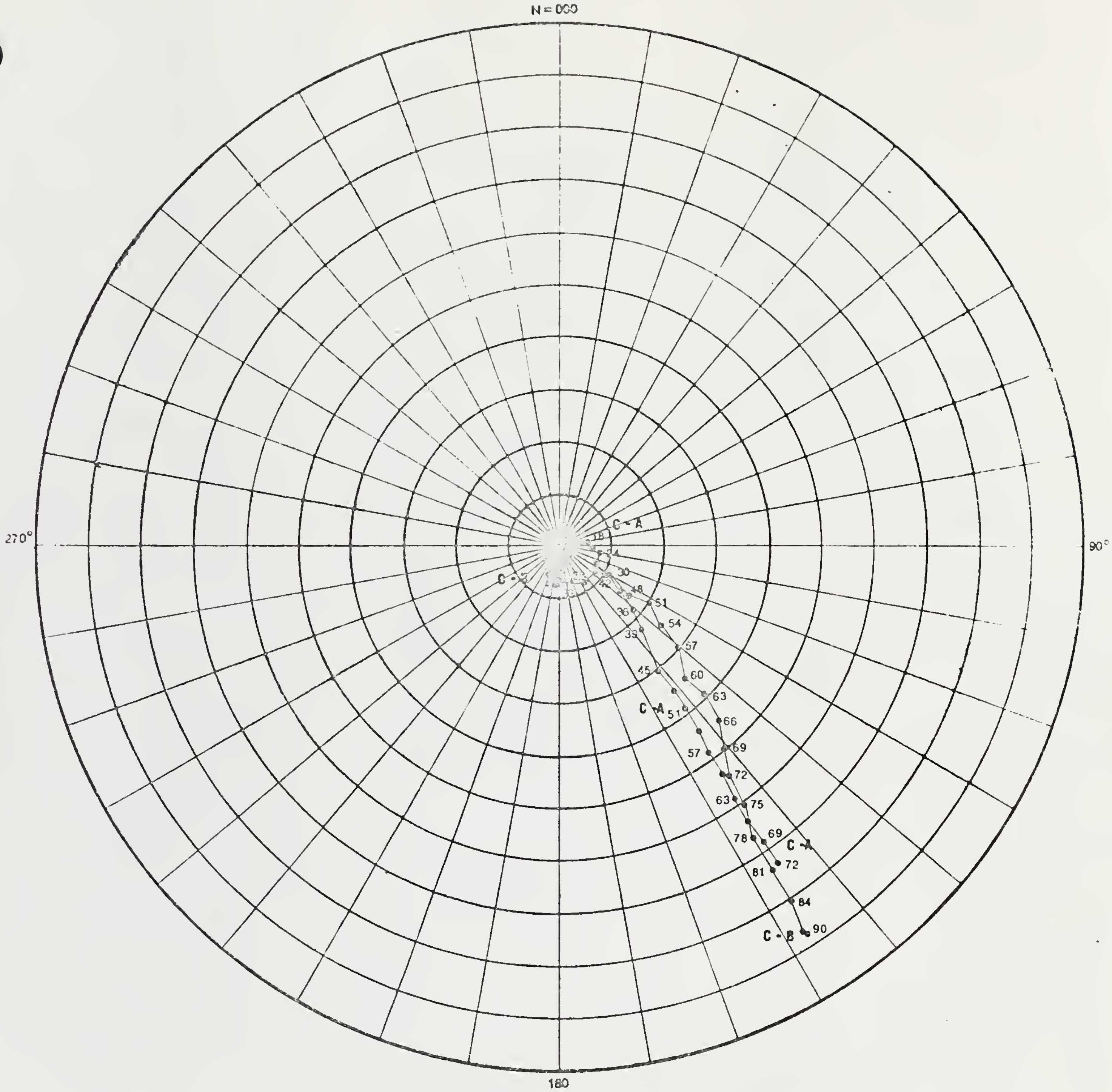


Figure C-35. Comparison of Pibal Soundings made at 0800 MST on 15 October 1974 over Tracts C-a and C-b

10/15/74
0800
C-a 2000 ft/div
C-b 2000 ft/div

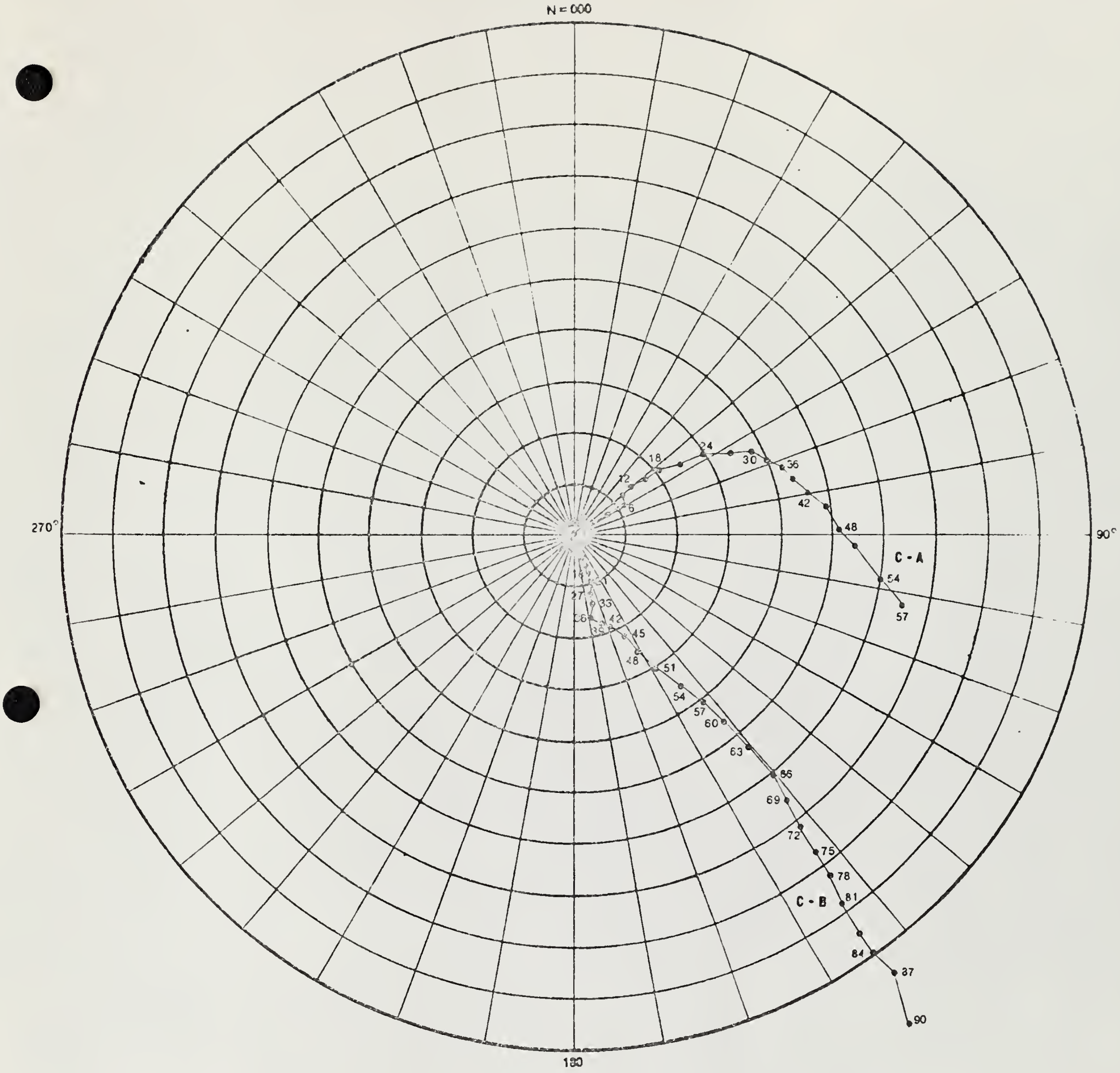


Figure C-36. Comparison of Pibal Soundings made at 1200 MST on 15 October 1974 over Tracts C-a and C-b

10/15/74
1200
C-a 1000 ft/dv
C-b 2000 ft/div

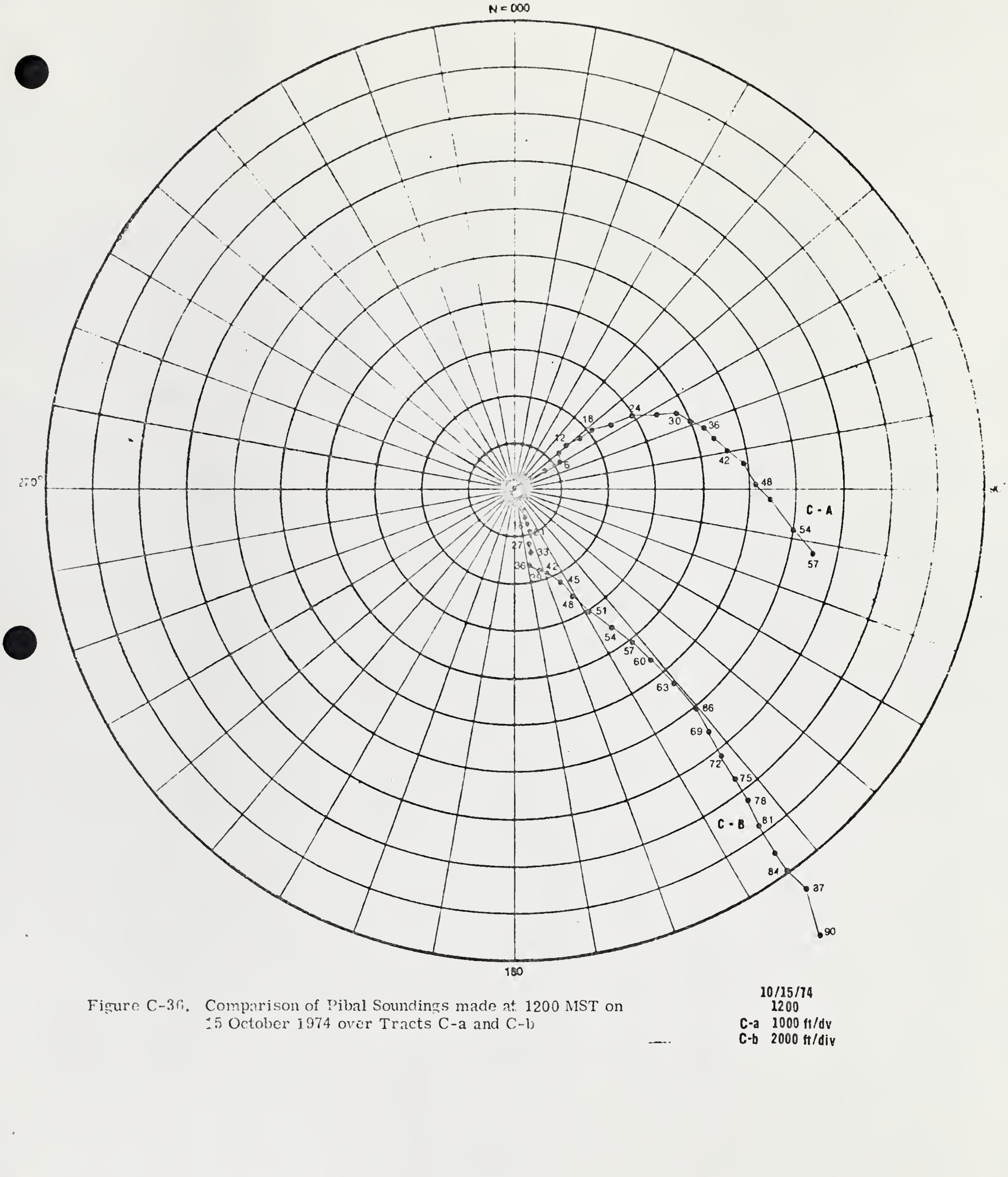


Figure C-36. Comparison of Pibal Soundings made at 1200 MST on 15 October 1974 over Tracts C-a and C-b

10/15/74
1200
C-a 1000 ft/dv
C-b 2000 ft/div

RECEIVED
DEC 9 1974
MAX W. LEGATSKI

THE OIL SHALE CORPORATION
10200 WEST HIGHWAY 72
GOLDEN, COLORADO 80401
303/279-7721
CABLE ADDRESS: "TOSCOPETRO"

December 4, 1974

10100 SANTA MONICA BOULEVARD
LOS ANGELES, CALIFORNIA 90067

LABORATORY DATA LETTER 74-134

Dr. Max W. Legatski
Atlantic Richfield Company
2 Park Central, Suite 555
Denver, Colorado 80202

Re: Air Monitoring and Analytical Determinations of Volatile Trace Metals at the C-b Tract

Project No. 197

Dear Max:

This is the first quarterly report on the sampling and determination of airborne concentrations of volatile trace metals, e.g., arsenic*, selenium and mercury at the C-b tract. Samples of all these metals were collected at the meteorological tower on November 22, 1974. The relevant meteorological data is included in Table 1. Air sampling for particulate matter in the respirable ranges (0.1 to 1.0 micron) could not be performed because of the late arrival of the needed equipment.

Selenium and arsine were sampled using impingers containing appropriate absorbing solutions. A 10 ml aliquot of doubly distilled water was used for collecting selenium

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* Hereafter, referred to and determined as arsine. Arsenic oxides and arsenates are also encountered in the air and will be measured as particulates by the spark source spectroscopy.

(concentration expressed as selenium oxide) and a 4 ml portion of silver diethyldithiocarbamate-pyridine solution for arsine. These two metals were sampled at the rate of 2.5 l/min until sufficient volume of air (between 0.1 to 0.3 cubic meter) passed through the impingers containing absorbing solutions. Airborne mercury was collected by using a cannister which was placed tightly at the bottom of the high volume sampler. The cannister contained two layers of fine silver wire and a glass wool plug between the two layers. A known volume of air was passed through the cannister, thus allowing mercury to amalgamate with silver.

The analytical techniques used for the determination of these metals are summarized in Table 2. Also included in the same table is pertinent information on sampling and concentrations of metals obtained.

Very truly yours,

ARUN D. SHENDRIKAR
Senior Research Chemist

ADS/aw
Encs.

Approved (MTA) (FCH)

TABLE 1

METEOROLOGICAL DATA
RECORDED NOVEMBER 22, 1974

Sampling Point	Meteorological Tower
Barametric Pressure	593.30 mm Hg
Temperature	50°F
Wind Velocity	15 mph
Wind Direction	Southwest
Relative Humidity	38%
	The day was clear, cold and reasonably sunny.

TABLE 2

ANALYTICAL DETERMINATION OF VOLATILE TRACE METALS SAMPLED AT THE C-b TRACT

Metal	Analytical Basis	Total Volume of Air Sample (liters)*	PPB (v/v)
Arsine	Arsine was trapped into silver diethyldithiocarbamate solution. The color intensity was measured using Spectronic 20. Concentration of arsene in the sample was obtained by using a calibration curve.	112.96	3.10
Selenium**	Doubly distilled water was used to collect selenium oxides. Selenium concentration was determined using the catalytic method. The method is based on the catalytic effect of selenium in the reduction of methylene blue by sodium sulfide.	225.90	0.10
Mercury+	Airborne mercury was allowed to amalgamate with silver which was then heated to 350°C to vaporize mercury. Mercury vapors were fed into a silica tube and its concentration was determined using the flameless atomic absorbtion method.	149,648.00	0.012

* Measured volumes were corrected at B.P. 593.30 and 10°C.

** Concentration expressed as selenium oxide.

+ Analyzed by Commercial Testing Laboratories, Denver, Colorado.